

JULY 1922 VOL 198

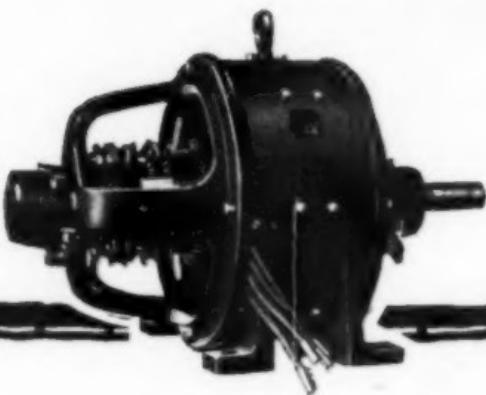
Monthly

A Reference for Buyers

HITCHCOCK'S
**MACHINE
TOOL LIST**

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago



Try a Type T Reliance Motor on a tough job

That's what they are built for. They are made to stand hard usage and to stand it longer than the ordinary motor. More and better material is put into vital parts. Coils are carefully insulated, shafts and bearings are large, end brackets are heavy. Commutators include special details that mean longer life.

Type T motors in installations of 1 to 300 have been making good for over five years doing hard jobs in steel mills, and metal working shops.

Let us send Bulletin 2014 which shows why these motors will do more than meet ordinary needs.

**Reliance Electric & Engineering Co.
1050 Ivanhoe Road, Cleveland, O.**

Branches:

BOSTON, NEW YORK, PHILADELPHIA, PITTSBURGH,
CINCINNATI, DETROIT, CHICAGO

We specialize in motors, sizes 1/2 to 150 h. p., constant
and adjustable speed D. C.; squirrel cage and slip ring A. C.

Type **T** Heavy Duty
RELIANCE MOTORS
Dc and Cc

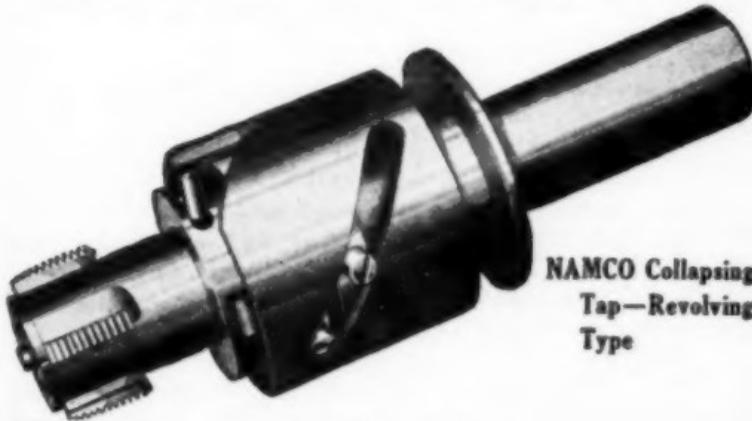
ONE OF SEVERAL NAMCO THREADING TOOLS

Built in Revolving and Non-Revolving Types

Automatic Collapsing Taps,
Capacities up to 7-1/8"

Self-opening Dies,
Capacities up to 4-1/2"

Up-to-the-minute tools ready for your work.



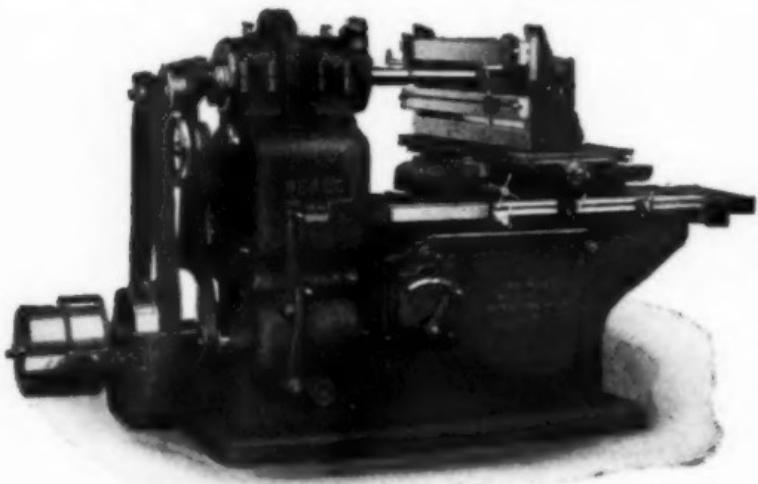
NAMCO Collapsing
Tap—Revolving
Type

Send for catalog

THE NATIONAL ACME CO.
CLEVELAND, OHIO

NEW YORK BOSTON CHICAGO DETROIT BUFFALO

A New HEALD Cylinder Grinder



Style No. 50 with Heald Universal Jig Will Handle All Sizes and Styles of Blocks

The HEALD Style No. 50 Cylinder Grinder is an ideal machine for both the manufacturer and the repair shop. It is unusually massive, simple to operate, and has an hydraulic drive for the table instantly giving any speed desired, enabling the operator to get an unusually fine finish. With this drive it is possible to reverse the table at any desired point without shock or noise.

Whether you are a manufacturer or expect to go into the regrinding business, you should look into its advantages at once.

THE HEALD MACHINE CO.
6 New Bond St., WORCESTER, MASS.



C-O 20-INCH DRILL—No other drill of this size gives you 12" spindle travel, a decided advantage in cylinder boring. Bores to center of 21" circle.

CANEDY OTTO

Equipment

—meets the need for the highest quality equipment at prices which makes the work done on these machines not only completely satisfactory, but highly profitable, as well. Every C-O item backed by 50 years of experience.

Send for complete catalog

Canedy-Otto Mfg. Co.

Manufacturers of Automotive Equipment, Drills, Punches, Shears, Shrinkers, Countershafts, Grinders, Buffers, Forges, Blowers, Tuyere Irons, Blast Gates.

Main Office and Factory

Chicago Heights, Illinois

New York Office, Grand Central Palace



C-O NO. 3 GRINDER—Furnished with tight pulley or tight and loose pulley, and rests. All C-O Grinders are designed for ready attachment of guards.



C-O NO. 1 ARBOR PRESS—Capacity, 3 tons; diameter of work, 14"; capacity of table, 11"

Try a Jacobs Super Chuck



Its Gripping Power is such that only a *slight pressure* is required on the key for the heaviest drilling. For ordinary drilling and tool work the chuck may be tightened by hand without using the key.

Try just one SUPER CHUCK today.

See your dealer or write us for catalogue A-17, which shows and describes our complete line.

The Jacobs Manufacturing Co.
2074 Park Road
Hartford, Connecticut

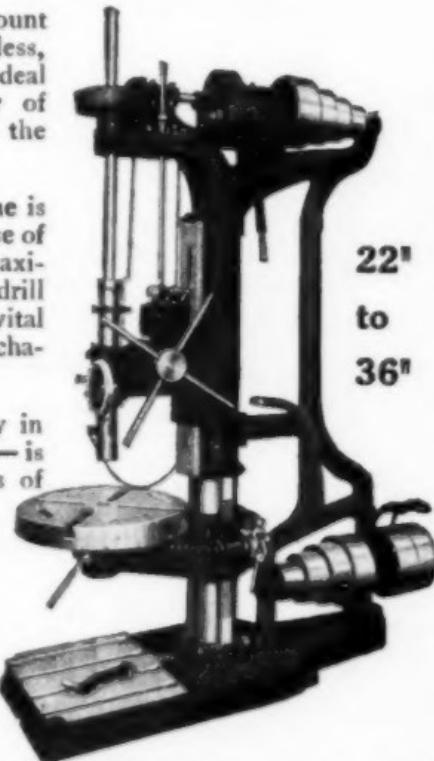
More Drilling for Your Money

With the Improved AURORA Drill

For the same amount of invested cash or less, you obtain a great deal more in the way of daily output with the fast "Aurora."

The whole machine is built for the purpose of delivering the maximum power at the drill point—the most vital spot in drilling mechanism.

This superiority in power—efficiency—is achieved by means of the unusually large pulley diameter and the consequent ratio of gearing. After exhaustive tests, drilling experts have pronounced the "Aurora" unsurpassed in practical drilling efficiency. The feed box control is right in front of operator.



22"
to
36"

Other exclusive features: Patent tapping attachment; Fool-proof table; Automatic release worm wheel; Enclosed positive gears.

An investigation will well repay you—make it now

THE AURORA TOOL WORKS
Aurora, Indiana, U. S. A.



No. 1 Ten Inch Sensitive
Bench Drill Press

It's a Burke

The most used
Bench Drill Press
in the world

The Reason:—

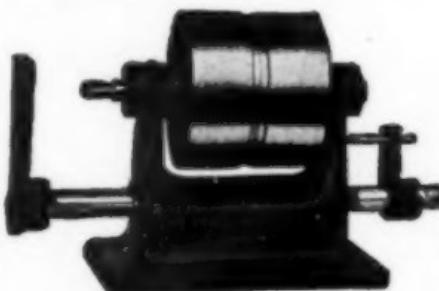
Burke Quality

PRICES:

Without swinging arm.....	\$22
With swinging arm.....	\$26
Motor Driven	\$55 to \$60

THE BURKE

Friction Driven
Tapping Machines



Eliminate all
shock to the
tap and save
95% of your
tap breakage

The most efficient machines made for work within their capacity. They are complete in themselves, yet cost less than the average tapping attachment.

*Send us samples or drawings of your tapping
jobs and let us give you production estimate*

The Burke Machine Tool Co.
297 East 16th St., Conneaut, Ohio



**Watch The Corners
Dollars Saved—Dollars Made**

Squeeze Your \$ Of Cost

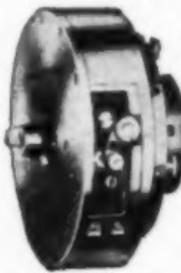
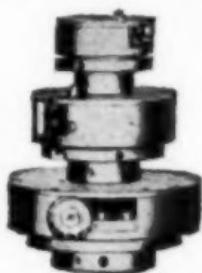
Get An *Avey* Get all the Profit

Drive To The Limit
Double Production—Half the Labor

The Avey Drilling Machine Co.
Cincinnati, Ohio

Write For Folder—

Illustrating Many of Their Time-saving Uses



THE FOLDER shows them at work on boring mills, milling machines, lathes and drill presses. Made in 6ⁱⁿ to 24ⁱⁿ sizes with one-way and two-way feeds. Convenient tool adjustment; quick feed reverse; real wonders for results. Write today for the illustrated folder.

MUMMERT-DIXON CO., Hanover, Pa.

Thor Portable Electric Drills

For Drilling, Reaming, Wood Boring
and Screw Driving

New 16-Page Book Showing Complete Line Free

Jacobs
Chucks
Regular
Equipment



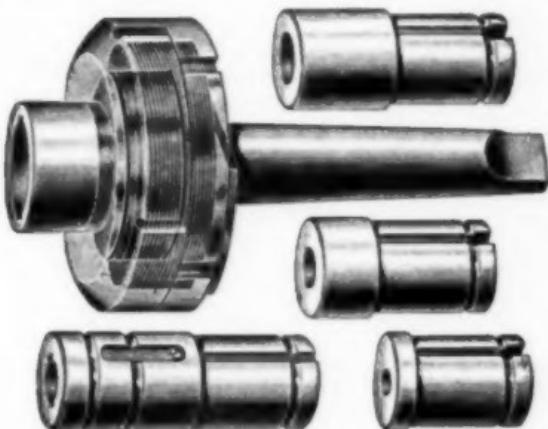
Agents Wanted

Independent Pneumatic
Tool Company

600 West Jackson Blvd., CHICAGO

Offices and Agents Everywhere

Use SAFETY Tap Holders and SAVE Tools, Time, Labor



"they prevent the breaking of your drills and taps"

THE SAFETY Friction Driven Tap Holder puts within easy reach of every shop a really worth while economy.

Tap breakage is *prevented*, and this means you save not only the cost of new taps, but also cut out the expense of labor involved in removing broken ones and the consequent delay of the job in hand.

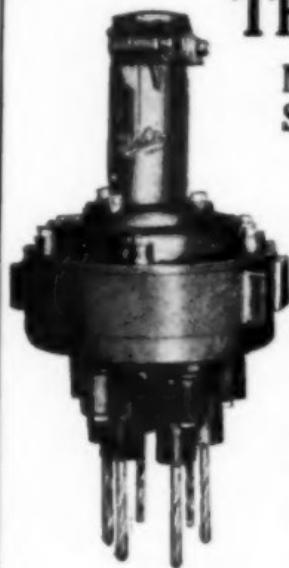
The SAFETY permits tapping to the bottom, and enables you to change from drilling to tapping and vice versa without stopping spindle. In case of any undue strain, the Holder will instantly stop, while spindle continues revolving. This eliminates all tap breakage.

The SAFETY is regularly made in four sizes, 0 to $2\frac{1}{2}$ ", but can be furnished with special sockets with friction set to carry one or two sizes of taps, which are especially useful where sizes are constantly changing.

Seeing is believing—try one out on your toughest tapping job—be convinced—and profit accordingly

The Beaman & Smith Co.
PROVIDENCE, **RHODE ISLAND**

The Buhr—



Makes a Multiple of Your
Single Spindle Drill Press

Adjustable Spindle Drill Heads
with 2 to 12 spindles, on which set-
ups are easily made for circular, rec-
tangular or staggered positions.

Fixed Spindle Heads, bronze or
ball bearing, made to fit your work.

Either kind reduces drilling costs
with a vengeance.

*Send us a lay-out of your drilling work
And we'll tell you what we can do for you*

Nelson-Blanck Mfg. Co.
DETROIT, MICH.

New York Office: 50 Church St.

A Lot of Drilling Capacity—

This 16-inch, No. 7 Barr
is a sturdy, reliable, highly
efficient sensitive that will
give you more service and
satisfaction than you have
ever bought for so small a
sum. Takes drills up to
 $\frac{3}{4}$ -inch, and handles them
effectively. It gets results.

*Let us have your address for
complete description.*



FRANCIS REED CO., 43 Hammond St., Worcester, Mass.

Drill In Any Pattern—

Triangle, Square, Rectangle, Oval or Staggered



With the
Patented
U. S.
MULTIPLE
Spindle
Drill
Head

Transforms Your Single Spindle Drill Press into a multiple spindle, and you can drill several holes at the same speeds and feeds you use for drilling one. The patented double adjustment of spindles enables you to drill in any pattern—oval, triangular, rectangular, square, straight line or staggered.

The picture shows our adjustable type, which we make regularly with from 2 to 6 spindles. We make special heads to order, of both the adjustable and fixed spindle types.

It will cost you only a letter and a layout to find out how much we can save you on that intricate drilling operation

The United States Drill Head Co.
Cincinnati, Ohio, U. S. A.



Why Break Taps?

The Woodstock Improved
Safety Tapping Chucks
Eliminate this Waste

No matter how difficult the work, the Woodstock makes it safe to tap tough metals, blind tapping, and bottom tapping in shallow holes where a stop on a machine is useless.

This money-saver automatically releases tap the minute it binds or strikes bottom. The five sizes use standard taps.

Glad to send you one on trial

Peter Bros. Mfg. Co., 115 Railroad St.,
ALGONQUIN, ILL.

Saves Time Between Cuts

Which Means Money

THE BARKER Wrenchless Chuck



Operated more simply and effectively than an air chuck, and at far less cost. The work is centered automatically, chucked with one movement of the lever, and held with all the pressure it will stand. Gives the operating facility and speed of an air chuck without the cost for installation and maintenance. Made with two or three jaws for all work on lathes, turrets or semi-automatics.

Write for full description

Thomas Elevator Company
CHUCK DIVISION

31 S. Hoyne Ave.,

Chicago, U. S. A.



Barnes Drills

8 to 50° Swing

State size you are interested in and we will gladly quote. This is our 20-inch Drill with wheel and lever feed. Can furnish self feed and back also.

We have made over 22,000 of this size drill—is very popular and there is a reason—it's the best 20-inch drill made for the money.

We make this
Adjustable Arbor Press
In three sizes

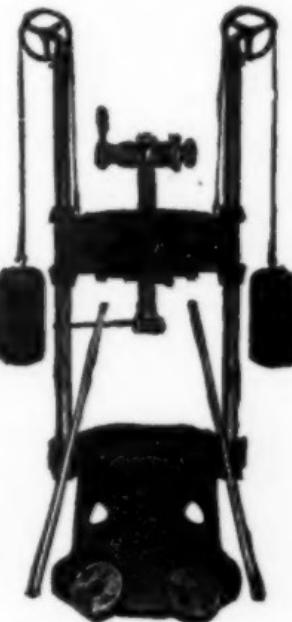
No. 1 size 12*x 24—\$100.00

No. 2 size 20 x 36— 175.00

No. 3 size 30 x 36— 200.00

* Means 12 inches between side screws.

Frankly, this is not a cheap Arbor Press, but is strongly made and most convenient to operate—just a lot better than others.



W. F. and John Barnes Co.
123 Ruby St., Rockford, Ill.

USE THE WALTON TAP EXTRACTOR *SIXTY DAYS*

On our free offer to test its merits



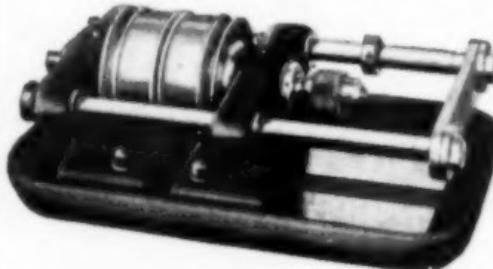
Taps have a habit of breaking at or below the surface, causing trouble and loss of time, just when you are in a hurry—that's when it generally happens. The Walton Tap Extractor quickly removes the broken piece, without injury to the work, and you can go ahead with the job as if nothing had happened. Sizes No. 8 to 1½".

Why not try it NOW, before more taps break?

THE WALTON CO., Hartford, Conn.

Whitney Friction Driven No. 1 Tapping Machine

Saves Taps—Insures Perfect Threads and Holes



Capacity
Up to ¼"

Weight
85 lbs.

Friction drive and reverse—very sensitive. Ball bearing end thrust. Saves taps, gives perfect results, and its quick and easy control insures maximum output. Complete with countershaft, Jacobs chuck and cross bar for holding work fitted to your job. Special fixtures on order. Write for prices.

Whitney Metal Tool Co.
95 Forbes Street, Rockford, Ill.

NEW RICKERT-SHAFER COLLAPSIBLE TAP



A new and better Collapsible Tap, produced by experts. Capacity 1" and up

The R-S Collapsible Tap is designed by our own experts, who have had many years of practical experience in the development, design, manufacture and use of threading tools. It is offered as a worthy companion tool to the now famous R-S (Boehm) Automatic Die-Head.

This modern tool makes good in every shop that has given it a try-out.

It is *positive* in action so that it *will always collapse* at the desired point without dependence upon any kind of spring action. A movement of the knurled ring one full graduation varies diameter of cutting points *one-half of one-thousandth* of an inch, from which it is obvious that adjustments may be made infinitely close.

Write for complete description. We'll be pleased to have your inquiry; you'll be equally pleased with the Tap.

Rickert-Shafer Co., 1110 Cherry St., Erie, Pa.

Steel Bearing Balls

Brass
and
Bronze
Balls



Steel
Burnishing
Balls

Ask for Price List 23-H

The Abbott Ball Company

Elmwood District, Hartford, Conn.

A Noiseless Riveter. But, Oh Boy!

How It Does Hustle!



It isn't always the noisiest tools that do the most work. The—

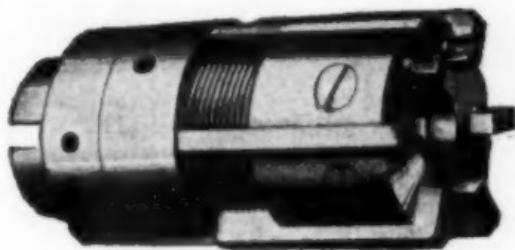
Grant Rotary
Rivet Spinner

—besides being noiseless, is unequalled in its combination of *speed*, *uniformity* and *finish*. Speed, one rivet per second, with any degree of tightness or looseness desired. Heads perfect and highly polished. Operated by boy or girl.

*Ask for Catalog, showing several styles
Also send samples of work for riveting*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.

How To Cut Reaming Costs



McCrosky-Super Reamers

Average from 10 to 20 regrindings and adjustments for each set of blades. The last cut is as clean and finished as the first. New blades can be easily inserted in the original body. The patented locking device insures continued rigidity and accuracy. There is a particular size and style McCrosky-Super for your job.

Send for a McCrosky Catalogue Today

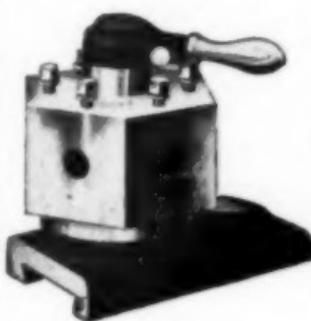
McCrosky Tool Corporation
Meadville, Pa., U. S. A.

Branches and Agencies in all principal cities

Export Agents: Benjamin Whittaker Inc., 21 State St., New York



Help Yourself—



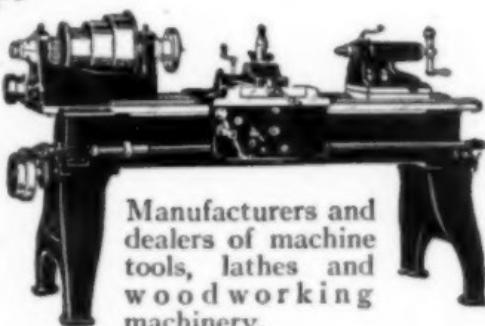
Your Product

can be manufactured
cheaper by an F. & S.
Turret.

Install one of these at-
tachments on your Lathe
and note the increase in
production.

FAY & SCOTT, DEXTER, ME.

PRYIBIL



Manufacturers and
dealers of machine
tools, lathes and
wood working
machinery.

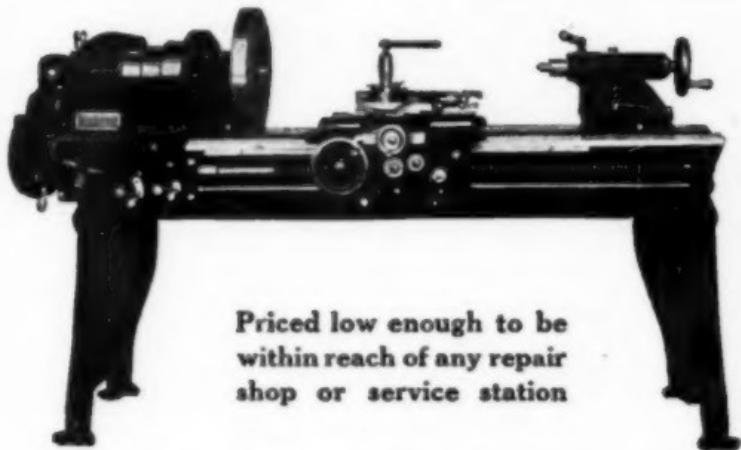
Catalogues and prices on request

ESTABLISHED 1859

P. PRYIBIL MACHINE CO.
INCORPORATED

512-524 West 41st Street, New York, N. Y.

"Built like a Watch"—Said a user of the
Willard MATTMAN BRATTEN Precision Lathe



Priced low enough to be
within reach of any repair
shop or service station

A LATHE for the most fastidious tool maker at a very popular price. We can supply all the usual tool-room equipment.

Our lathes are built in two sizes only, 13" and 15", and can be equipped with a geared headstock, all chrome nickel steel gears with shafts running on ball bearings. It is "built like a watch." Single pulley can be fitted with reverse or brake and all geared head lathes are apron controlled.

All our lathes are provided with reverse in apron, micrometer dials, thread cutting dial and many other refinements which makes Willard lathes the best you can buy for the money.

Our lathes are built for the hardest usage and for the most accurate work, therefore they make most excellent production lathes. We can furnish quick change or semi-quick change feed. All parts are standardized throughout.

Our specialty—Tool Room Lathes at the right price

The Willard Machine Tool Co., Inc.
CINCINNATI, OHIO, U. S. A.



The 18⁸ Heavy Duty Quick Change Gear MUELLER Engine Lathe is a marvel for rigidity, ease of control, and durability. It is the kind of Lathe you need in your shop to meet present day competition.

Let us tell you all about it

The Mueller Machine Tool Company

Radial Drills and Lathes

ESTABLISHED 1902

CINCINNATI, O.

Shapers, Lathes and Millers



Moderate prices with highest grade materials and workmanship.

Steptoe Shapers, Millers and Lathes should be your first consideration in equipping your machine shop.



14"x6'-\$400.00

16"x6'- 450.00

With Quick Change Gear Box \$85.00 extra

Send for complete Catalogue

THE JOHN STEPTOE COMPANY

2951 Colerain Ave.,

CINCINNATI, OHIO

Pedrick Lathe Boring Bars



There are many times when you could profitably use one of your lathes for boring—if you only had the proper appliances at hand.

We can equip you for such work with one of our Lathe Boring Bars. They are made in diameters from $2\frac{1}{2}$ " to 6" and various lengths, with a large assortment of cutterheads to meet miscellaneous requirements.

The lathe provides the power, and each bar has a two-change constant feed, hand-controlled or automatic. The bar is rigidly held and is easily taken down and reset without changing the alignment.

Put your boring problems up to us. We have all kinds of new boring machines, from our Standard Portable Cylinder Boring Bar to our new Floor Boring Machines.

Pedrick Tool & Machine Co.

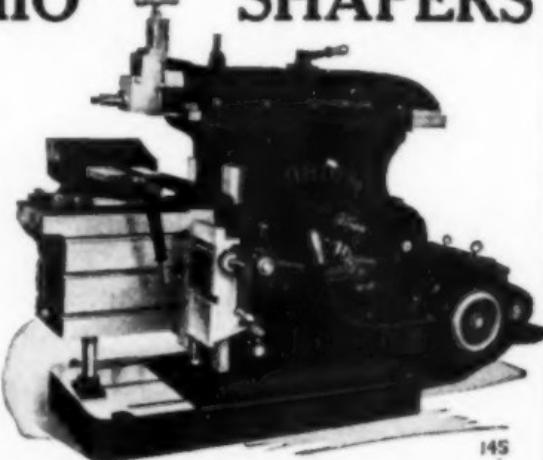
3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners, Portable Millers, Pipe Benders, etc.

"OHIO" SHAPERS

Accuracy
Power
Long Life
Plus
"OHIO"
QUALITY

All the way
through



145

The Ohio Machine Tool Co.

Established 1887

817 So. Leighton St.,

KENTON, OHIO

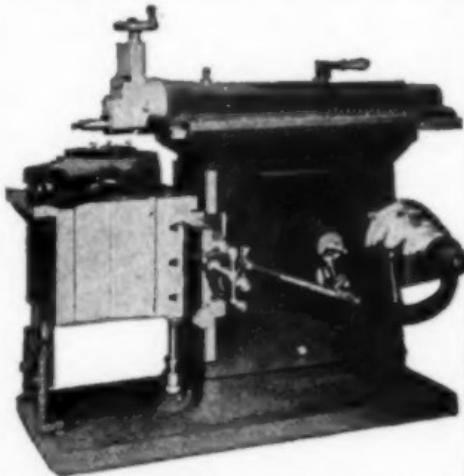
A Complete
Line of

HOLLINGWORTH SHAPERS

Back Geared
Crank Shapers,
12", 14", 16", 20",
24", 28" and 32",
with quick re-
turn of stroke.

Cone
Pulley,
Single
Pulley or
Motor
Drive.

Well adapted
to internal key-
seating.



Hollingworth Machine Tool Co.

2nd & Greenup Sts., Covington, Ky.

—Your Locker Question Should Be Settled Right—



May We Help You?

THE IDEAL CALLS FOR:—

- Privacy
- Cleanliness
- Convenience
- No Repairs
- No Replacements
- Less Fire-hazard
- Less Floor Space

“Terrell’s” is the Correct Answer!

Terrell Steel Lockers embody all the qualities of the ideal locker. The first cost is the ~~last~~ cost—and you will be enjoying their superb wearing qualities long after the original expenditure has been forgotten. And the first cost may not be as much as you imagine—we shall be glad to make a close estimate.

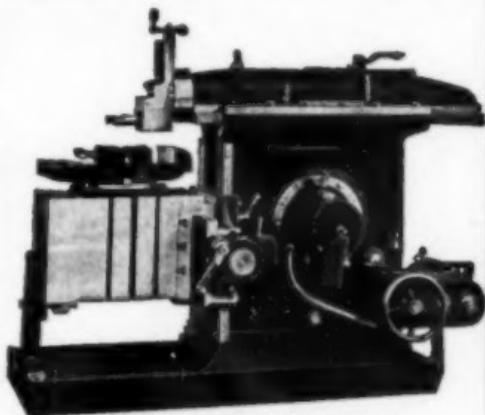
Writing us incurs no obligation—let's hear from you

Terrell's Equipment Company

Hall & Division Sts., Grand Rapids, Mich.

COLUMBIA SHAPERS

Have the weight and proportions essential for proper rigidity—centralized control affording quick, convenient operation—and high class workmanship which guarantees accuracy and best wearing qualities.



16', 20', 24', 28', 32'

Cone, Single Pulley or Motor Drive

The Columbia Machine Tool Company
Hamilton, Ohio

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through
Speed Box.

28" and 32"
Back Gear-
ed Crank,
Single Pul-
ley Drive.



The Smith & Mills Co. Station B.,
Cincinnati, O., U.S.A.

I Pay 500% Annual Dividends

You Can Prove It Yourself

*Built Since 1887
Better now than ever*



I am the
**TOWSLEY
TRUCK**

I am made in all
styles and sizes
to meet every
requirement.

TAKE A PENCIL and do a little simple figuring. Make your own estimate of how much labor is saved each time a truck is used. Multiply this by the approximate number of times it is employed per day, and this, again, by the labor cost per hour, and you can easily estimate the saving for a month or a year.

EFFICIENCY ENGINEERS have figured this out with great care, and they say that the average truck pays for itself every two or three months, *earning about 500% a year*.

I, the Towsley Truck,

—am such a good truck, because my makers believe that anything which earns 500% a year deserves to be well made. They believe it is economy to build me the best they know how—not to sell at a price, but to last the longest, to give the best service, and to earn the largest dividends. And that is why I have been adopted in so many plants as their standard truck equipment.

*Write to my makers. Tell them your requirements.
Let them help you make money. They are the—*

John T. Towsley Mfg. Co.
1036 Woodrow St., Cincinnati, Ohio

CULLMAN SPROCKETS

STOCK AND TO ORDER



Diamond, Whitney, Baldwin, Duckworth and
Coventry Chairs, Block, Roller and
High Speed Silent types on hand

CATALOG

CULLMAN WHEEL CO.,
1359 ALTGELD STREET
CHICAGO



REDFACE



PULLEYS

SHEAVES and
FLY WHEELS

Highest Quality

*Write for
CATALOG*

THE PYOTT FOUNDRY CO.

328 N. Sangamon St., Chicago, Ill.

You Need Less Oil

When using a Curtis Oil Extractor



It helps you to make a better showing on the profit side of the ledger. The price of the machine is returned in a few months; after that the oil saved from chips, shavings and waste is pure gain. The three sizes are easily operated, sturdily built and have ball bearings.

No. 400—Capacity: 2 Bushels

*A Curtis reduces oil bills and expense.
Write for details and prices.*

Albert B. Curtis Estate

Box 44

Worcester, Mass.

COOPER

UNIVERSAL JOINTS FLEXIBLE COUPLINGS

"YOU CAN'T BREAK THEM OR WEAR THEM OUT"

Smooth; neat; only 5 simple parts; large oil space;
working surfaces case-hardened; no limit to size;
guaranteed stronger than shaft at any angle.

6 PATENTS



Three hundred years ago Hooke invented the Universal Joint with fixed centers. Three hundred years have elapsed and still the Hooke type of universal joints are burning up power and breaking in operation.

The Cooper Patented Universal Joint with no fixed centers is just as frictionless as the crosshead of an engine at any angle. "*You can't break them or wear them out*" with shafts joints are bored for. Perfect lubrication at any speed.

Sizes $\frac{1}{4}$ " to 2" in stock bored to fit YOUR shafts.

Send for one and try it out

Cooper Flexible Transmission Co., Inc.
1723 8th Ave., Brooklyn, N. Y.

Weigel Single-Wheel "Kwality Kaster"

Will not crush or break. Swivels on steel machined rollers. The best single caster on the market.

Double-Wheel "Trukaster"

Lasts three times as long as others. Easiest running, strongest, and most durable double-wheel caster made. Has heavy plates and axes.

Write for Price List

**THE HAMILTON
CASTER & MFG. CO.
HAMILTON, OHIO**



Investigate LATEST
"WHITNEY"
HIGH MILEAGE
Roller and Silent Type
CHAINS

Lowest in Cost per *Thousand Miles* of Service

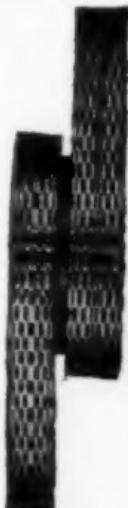


Latest Roller Chains Have Special Quality
Solid Rolls and other Important Improvements

Front End Motor Chain Drives



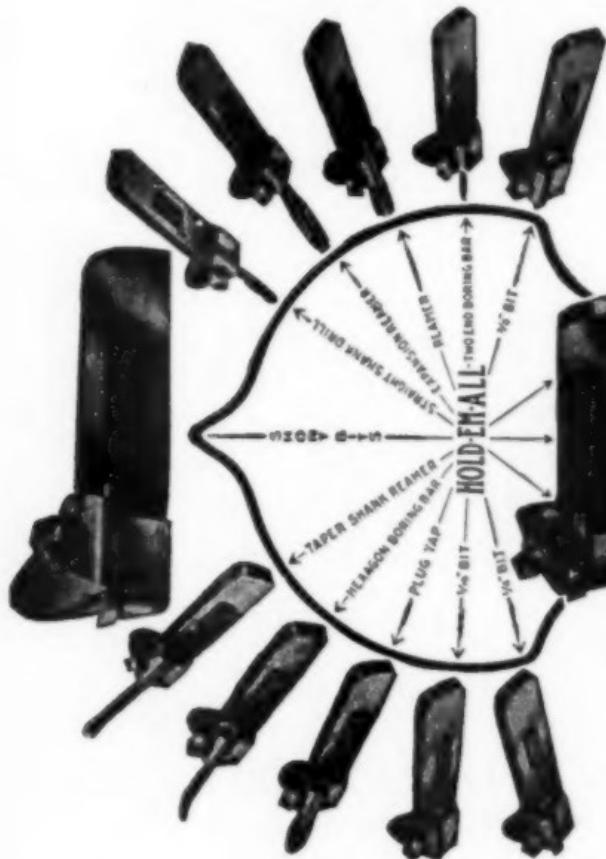
Exceptional
Mileage
and
Never Known
to Skip the
Sprocket Teeth



The Whitney Mfg. Co.
Hartford, Connecticut, U. S. A.



Plain Index Centers Swing 10" Diam.
For any Plain Milling Machine



"HOLD-EM-ALL" TOOL HOLDERS

Holds any shape stock. Holds short bits. Combines many in one. Made R and L hand. Off-set and S shanks, and conform to all types of other makes. Write for catalog. Consult your supply house.

ALBANY, N. Y.

SIMMONS ECONOMY TOOL CORP.,

WHY Keep Your Production Down

and continue to waste money? This is practically what you are doing when you use cheap, inaccurate Index Centers, when a few dollars more will buy a DICKOW INDEX CENTER, which is absolutely dependable, and guaranteed for its high degree of accuracy.



PROMPT
DELIVERY

Stood the
test for
14 years



Over 2000 satisfied users
all over the world.

Your old Index Centers
taken in trade.

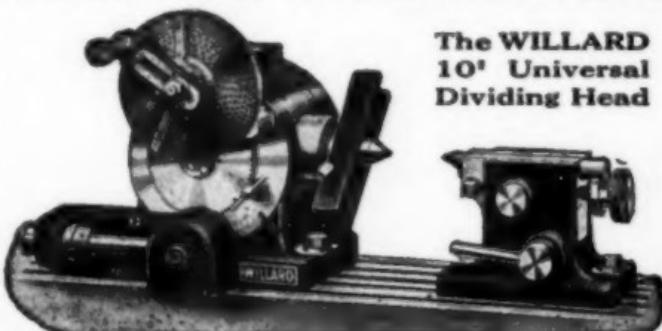
We also sell an Index Center called "Best"

Dependable and Accurate. Write us today for complete descriptions

FRED. C. DICKOW MACHINERY CO.
2105 W. Lake St., Chicago, Ill.

Takes Care of Heaviest Cuts

The WILLARD
10° Universal
Dividing Head



YOU WILL FIND these index centers reliable for any job on a milling machine. The graduated swivel head adjustable at any angle between 10 degrees below horizontal to 10 degrees beyond vertical. Clamping device is specially rigid. Spindle has No. 10 B. & S. taper and is made of the highest grade steel, hardened and ground. Head and tailstock centers made of best tool steel. Complete index plate. All parts interchangeable. Made right or left hand. *Full details sent you on request.*

The Willard - Middletown Machine Co.
Middletown, Ohio

Burke Bench Millers

FOR
Accuracy
Convenience
Economy

On small milling operations, where accuracy as well as production must be had, are the places to use Burke Bench Milling Machines.

Built in various sizes,
both hand and power
feed, and at prices
ranging from \$100 to
\$220.



\$220.

BURKE No. 4

The Burke Machine Tool Co., 297 E. 16th St.
Conneaut, Ohio

No. 1 U. S. Improved

Hand and
Weight Feed

Milling Machine

-and-

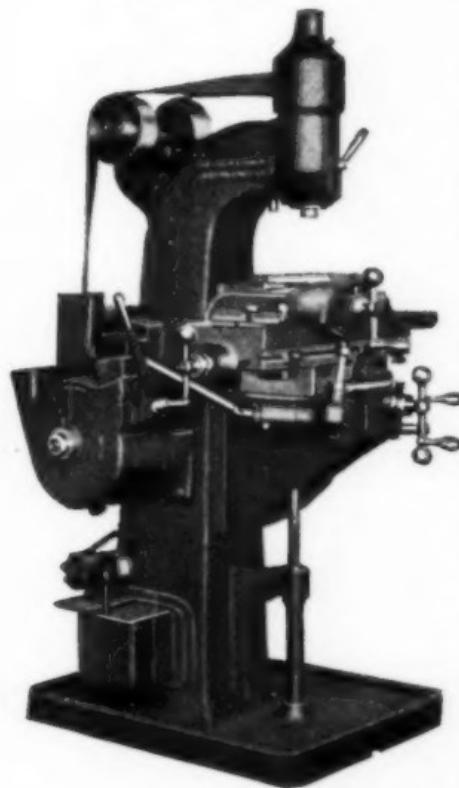
14" U. S. Sensitive Floor Drill

are two moderate-priced tools with which you can do a tremendous amount of work. The Miller has more power than any similar machine of its weight, and is extremely efficient and economical in operation. The Drill is unexcelled on holes $\frac{1}{2}$ " and smaller.

Description and money-saving prices upon request

The United States Machine Tool Co.
Cincinnati, Ohio

The Taylor & Fenn
Vertical Milling Machine
With Circular Milling Attachment



The Circular Milling Attachment, when used with our Vertical Milling Machine, affords great possibilities for continuous milling operations, for milling segments of circles, circular slots, and all varieties of circular or longitudinal milling on plain or irregular shaped pieces within its capacity.

The Attachment may be operated by either hand or power feed, and as it is driven from the main table driving shaft of the machine proper, both the power table feed and the power circular feed may be used simultaneously, which is of great advantage in certain classes of work.

SPECIFICATIONS

Working surface of table,	10½"
Maximum distance spindle to table,	9"
Height,	4"
Width of T slots,	½"

You'll be interested in complete description; may we send it?

The Taylor & Fenn Company
Hartford, Conn., U. S. A.

Just The Machine



for those light cuts on details for Fire-arms, Sewing Machines, Typewriters, Bicycles, Electrical work, and a thousand and one other details used in the manufacture of the various products of the manufacturing world.

Send for descriptive circular

THE CARTER & HAKES MACHINE CO., West Winsted, Conn., U. S. A.

NEW ENGLAND AGENTS—Hill, Clarke & Co., Boston

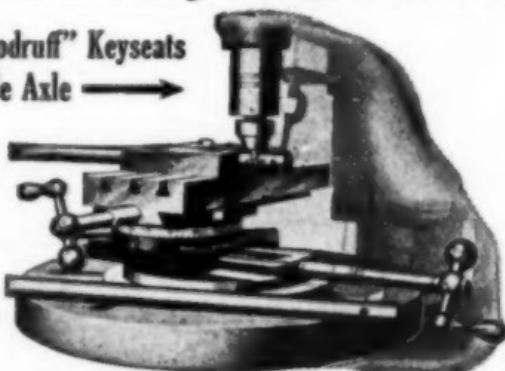
NEW YORK AGENTS—Hardinge Sales Co., Grand Central Palace

WESTERN AGENTS—Marshall & Huschart Machinery Co., Chicago, St. Louis, Indianapolis.

Mills On Any Drill Press

Cutting "Woodruff" Keyseats
In Automobile Axle →

For the
Garage
Diemaking
Repair Shop
Patterncutter



The Davis Milling Attachment and Compound Table can be used on any drill press from 14 to 42-in. swing. It is equally valuable in big and small shops, as it does most of the lighter jobs as well as a large, expensive machine; cuts all kinds of keyseats perfectly. Our cylinder reamers for reborning the Ford car, and our efficient air compressor are also attractively priced. Send for circulars.

**Hinckley Machine Works, HINCKLEY,
ILL.**



**"—saves
nearly half
the power!"**

The Record of the Rarefied

Somebody wrote to Knickerbocker:—

"This reduction in horse power is a great thing. Today we are operating the entire department with two 10s and one 5, making a total of 25 horse power, and before the installation of your "Rarefied" Dust Collectors we used 45 h. p. to do the same work." *Name of customer on request.*

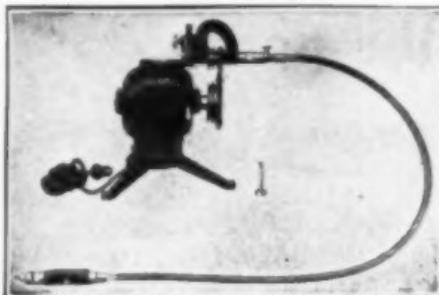
That's the experience everywhere—in big plants and small ones, and with all kinds of heavy and cutting dust—the "Rarefied" saves power and repairs, assuring big economy and long life. It collects the dust and discharges it automatically before the air reaches the fan, which eliminates all cleaning out by hand.

Our explanatory Booklet is yours for the asking

THE KNICKERBOCKER COMPANY
JACKSON, MICH.



Haskins' Flexible Shaft Equipments Combine



the flexibility of the human hand with the accuracy of a machine. Type H-5 is only one of our complete line.

Write for catalog No. 36 today

R. G. Haskins Company
29 So. Desplaines St., Chicago, Ill.

SEND BLUEPRINTS for Quotations on
**Hollow Bored forgings
and Steel Shafts**



Piston Rods
Clutch Shafts
Lathe Spindles

Rams
Steel Pipes
Etc., Etc.

You'll be pleased with our service

**American Hollow Boring Co.
Erie, Penna.**

Meeting Competition

is a matter
of COST

Dump a gross or
more of Screws
here

Drives machine screws,
wood screws, stove bolts,
hex. head or square
head bolts, or most any-
thing that can be maga-
zined.



Magazine-Fed Screw Driving Reduces Costs 75% to 85%

Factory costs determine the margin you have to work on to meet competition at a profit. Wherever you reduce costs, you increase your margin just that much.

Magazine-Fed Screw Driving reduces the cost of driving screws 75 to 85 per cent. You need that saving—some of your competitors probably have it now.

Tell us the dimensions over all of your work, and the gauge and length of screws you are driving, and we shall be glad to furnish you with complete information.

The Reynolds Machine Company

Dept. H. H.,

Massillon, Ohio

A Strong Portable Key-Way Cutter

This handy little tool is easily taken right to the job where it cuts key-ways of just exactly the right dimensions. It does the work quickly, accurately and at minimum cost, saving labor and money. Just clamp the tool to the shaft and turn the crank.



New Style "B"

Style "B" has six milling cutters and cuts keyways from $\frac{1}{4}$ " to 2" wide, in shafting 2" to 8" in diam. and 12" long without resetting.

THE BUCHER-SMITH CO.
East Liverpool, Ohio

Nicholson Expanding Mandrels



**One Set of Only Nine
Fits Any Hole $\frac{1}{2}$ " to 7"**

One of the set of nine fits any hole, round or square, from $\frac{1}{2}$ " to 7", without caliper or guesswork. They will take the place of ALL the solid mandrels you now have and of those you would have to make for future use. They save space, time and labor, and are adaptable to work of the most varied nature. Write for 30-day trial offer.

Nicholson Arbor Presses

are also great savers of time and labor. There's a size for your needs. Write for folder.

W. H. Nicholson & Co.
117 Oregon St., Wilkes-Barre, Pa.

Simplest and Best Keyseater

The New Catlin Makes New Records



Popular in

**Navy Yards
Government
Shops
Automobile
Plants
Factories at
Home and
Abroad**

*— because it
never fails to
reduce costs!*

Has less than half the
number of parts of
other keyseaters.

Sizes for all classes of
work.

Built for direct-con-
nected motor or belt
drive.

The Catlin is an exceedingly simple machine to operate, and makes it easy for any mechanic to make good, accurate keyseats. And it's built to stand up to the most exacting demands.

In three minutes time it cut a keyseat 6" long, 1" wide and $\frac{7}{8}$ " deep in a cast steel hub; in twenty minutes keyseats $2\frac{1}{2}$ " long, $\frac{1}{2}$ " wide and $\frac{1}{4}$ " deep in 20 mitre gears of 8" diam. This was all done in the ordinary course of a day's work.

Write us your needs and we'll supply the right machine

Chattanooga Machinery Company
Chattanooga, Tenn.



"Wear-Ever" Woodruff Chuck And Keyway Cutter

The "Wear-Ever" Woodruff Keyway Chuck insures a positive drive and true-running cutter. Eliminates making collet chucks. Fits all standard makes of milling machines, and is made in all tapers, such as Brown & Sharpe and Jarno tapers.

Let us supply you with cutters

No extra charge for the square



SCULLY-JONES & COMPANY, 13th and Robey Streets, CHICAGO, ILLINOIS

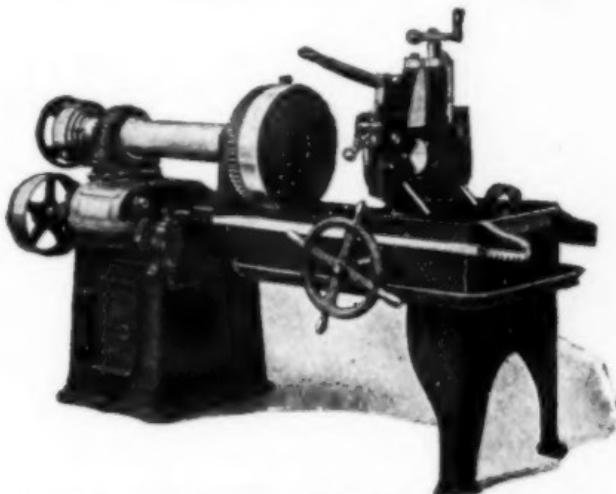
What can you say about this tool? Get catalogue "O" and become familiar.



National Machine Tool Co.

2268 Spring Grove Ave., Cincinnati, O.

Speed and accuracy guarantee a lower cost on your pipe threading



(No. 3 Peerless Improved—Cap. $\frac{1}{4}$ " to 3"—Belt Drive)

Bignall & Keeler Pipe Machines are the
ripe product of some 35 years' experience in building and
perfecting this type of machine tool, and we know that every
one of our 17 styles and sizes can keep your pipe threading
and cutting costs down to bed-rock.

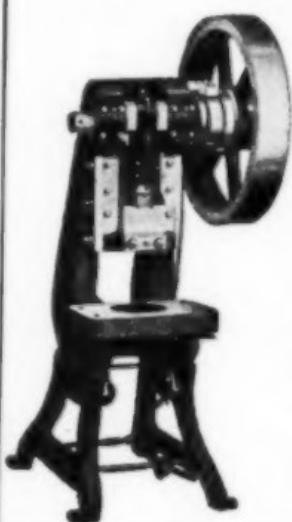
B. & K.s. are superior in conveniences, so that the operator has no trouble in getting out the maximum quantity of work. And besides having speed, they do accurate work day after day, year in and year out—they are built for the strenuous life and stand up to it.

Details gladly sent on request—write us or our agents

Bignall & Keeler Machine Works **Edwardsville, Illinois**

Sales Agents: Manning, Maxwell & Moore, New York, N. Y.
Chicago Philadelphia Boston St. Louis Pittsburgh Cleveland New Haven
Cincinnati Buffalo Syracuse Detroit Milwaukee San Francisco Seattle

Here Is A Press



With Plenty of Steam
Back of THE PUNCH

HIGH DUTY
ROCKFORD
PUNCH PRESSES

Made in straight side and
inclinable types. Their great
power backed by rigid design
enable them to do the work
you demand and stand up to it.

Write For Catalog

Rockford Iron Works
Rockford, Ill.

Complete Line of **Willard Power Presses**



(Inclinable Open Back)

For Efficient, Economical
Sheet Metal Press Work

Built for hard service and embodying
the latest power press improvements.
All parts practically interchangeable.
High grade steel shaft capable of with-
standing the heaviest strains. Latch
has positive safety stop making it im-
possible for press to "repeat" until the
treadle is pulled clear down.

Powerful--Accurate--Durable

Full details on request

The Willard-Middletown Machine Co.
Middletown, Ohio

The WALSH

Automatic Push or Pull Feed

For Feeding Roll or Strip Stock in Power Presses



A simple, practical device which adds so much to the earning capacity of power presses of all makes that you cannot afford to be without it.

It permits the stock to be automatically pulled or pushed to the die, as best meets your requirements. Feed is adjustable 0" to 6". Takes stock $\frac{3}{4}$ " to 6" wide. It is easily attached, positive in operation, simple in adjustment and a big aid to production.

Complete information gladly sent for the asking

Walsh Press & Die Co.
4709 W. Kinzie St., Chicago, Ill.

Also Manufacturers of a Complete Line of Power Presses



No. 1, 2 & 5

That Job Of

cutting sheets, bars and round rods in iron and mild steel, can be done on our line of

Hercules' Shears and Rod Cutters

without starting up the power plant. No belts to sew, no shafting to turn.

Catalog No. 2 on request.

W. C. & F. C. TUCKER
HARTFORD, CONN.



Plain Shears Nos. 3 & 4



Hand
Power
Angle
Shear
AND
Notchers

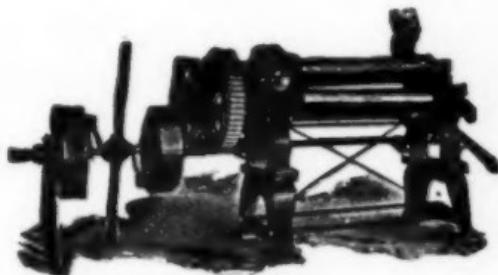
THE LITTLE **BLACKSMITH**



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**J. F. KIDDER MFG.
COMPANY**

BURLINGTON, VERMONT



BELoit

INITIAL TYPE

Sheet & Plate Bending Rolls

The Beloit Initial, or side bending, type roll has been designed to meet the demand for a strong, efficient, quick acting roll for use where the heavier Pyramid Type is not required. It is especially adaptable for use in shops handling sheet metal and for the lighter class of work in Boiler Shops, such as stacks, breeching small tanks, and the like.

The upper roll is geared to the adjustable lower roll thus pinching the plate, while the idle roll, which is also adjustable, does the bending. The outer housing is hinged and the upper roll is raised by throwing a cam lever, thus permitting the removal of sheets bent to a full circle. All styles of these rolls are double back geared and require a minimum amount of power.

Built in twenty-six sizes with capacities up to $5/16''$ and from $14''$ to $98''$ between housings.

HENDLEY & WHITTEMORE CO.
100 S. State St., BELOIT, WIS.



Do you fully realize the
importance of using the most
Rugged Punches?

T. H. L. PUNCHES are carefully made of the right tempered tool steel, so that *their users have continuous and profitable production.*

We carry large stocks of regular sizes for immediate delivery. Special sizes quickly made.

*A trial order will please
us both. May we have it?*

T. H. Lewthwaite Machine Co.
417 East 31st St., (Est. 1890) New York City



Belt Driven

DUPONT

Power Hammers

Belt or Motor Drive

For general forging and
tool dressing.

They embody a design and
workmanship that are un-
surpassed.

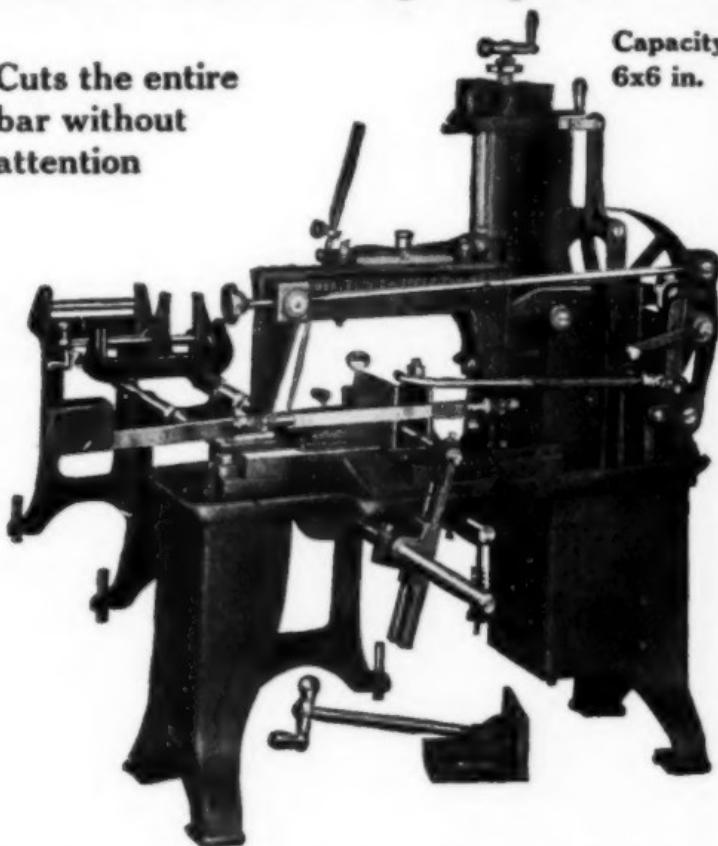
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United Hammer Co.
45 Bromfield St., Boston, Mass.

Automatic Stock Feed, Draw Cut
Marvel No. 5 High Speed Saw

Cuts the entire
bar without
attention

Capacity
6x6 in.



The great combination of speed, economy and accuracy. Equals the output of eight ordinary hack saws. Cuts entire bar into desired lengths without operator's attention. A modern money maker and a saver of time, blades and expensive material, and always accurate.

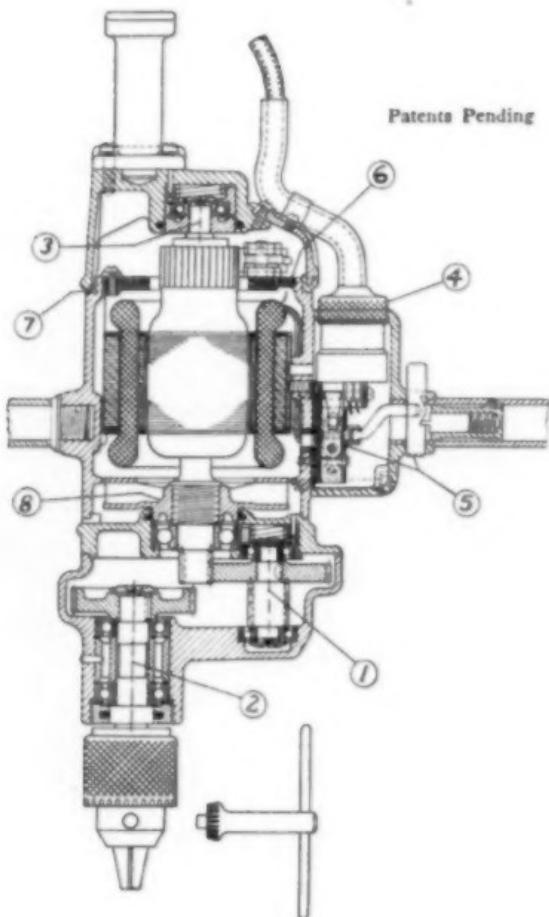
Don't overlook this. Consider that it is effecting great saving in hundreds of shops, and will do the same for you.

WRITE US FOR CATALOG of
MARVEL hack saws, band saws, punches, shears, rod cutters, drill press vises.

Armstrong-Blum Mfg. Co.
341 N. Francisco Ave., CHICAGO, ILL.

New Hisey SUPER

Are more



POWER needed
the New Hisey S

CURRENT capacity.

MOTOR of
dangerously high
life of machine)

MECHANICS
into the construct

1. Ball Bearing
2. Ball Bearing
3. Ball Bearing
4. Quick Change
5. Famous Hisey

Exhaustive tests
tinute to do more

A close tabulation
drills, has proven
is less than other

Exclusive Hisey
For maximum
Drill, and be con-

THE HISEY-WOLF MACHINE

AGENTS IN ALL PRINCIPAL CITIES

PER Universal Drills

more efficient from all angles

OWER necessary to do the work. There is an abundance of this in
new Hisey Super Drill, and some to spare.

URRENT CONSUMPTION is lower than any drill of same rated
power.

OTOR of our own design, is cool running. Does not operate at
dangerously high speed (a feature which reduces wear and adds to the
life of the machine) and is equipped with a practical commutator of liberal size.

ECHANICAL DESIGN determines the life of any machine. Look
at the construction of this new Hisey Super Drill.

- | | |
|------------------------------|---|
| Ball Bearing Gear Spindle | 6. Adjustable brush holder yoke |
| Ball Bearing Chuck Spindle | 7. Improved vent openings, safe-
guard the motor and interior
parts against accidental and
willful abuse |
| Ball Bearing Motor Shaft | |
| Quick Cable Connector | 8. Improved ventilating fan |
| Famous Hisey Patented Switch | |

haustive tests have proven that Hisey Drills *will do* and *will con-*
tinually do more work at lower operating cost than any other machine.

A close tabulation by prominent manufacturer using several hundred
machines has proven that the maintenance (cost of up-keep) of HISEY Drills
is less than other machines.

Inclusive Hisey features produce these facts.

For maximum production with uninterrupted service, insist on a Hisey
Drill. You will be convinced.

CHINE CO., Cincinnati, Ohio
ALL PRINCIPAL CITIES

Saves 60% In Cost Of Filing

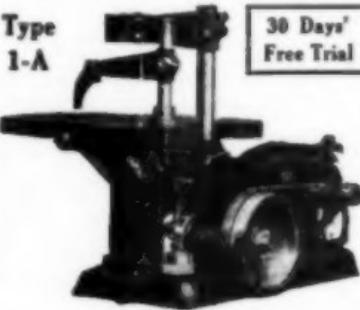
Uses up broken saw blades and saws
30% faster than other sawing machines

But don't take our word for it. Send for one of our Filing and Sawing Machines on 30 days' trial, and return at our expense if not the time saver we claim.

Uses standard files from 3" needle to 12" flat or bastard, also any hack saw blade or even broken blades. Adjustable up and down to utilize entire file. Does not require skilled help.

Type
1-A

30 Days'
Free Trial



Don't forget our trial offer. How about today?

Johnson & Biddle Tool Co.,

Elkhart,
Indiana

"QUICKWORK"

Registered in U.S.A. and Foreign Countries

Rotary Shears

Prices Reduced Sept. 1, 1921

Made in 7 Sizes

Cut all gauges of sheet and plate metal up to 1 inch thick in straight or irregular shapes and openings without cutting in front side of sheet. Leaves square, true edge that requires no finishing. Used in building ships, boilers, tanks, cars & general plate and sheet metal work.

Save 50 to 90%

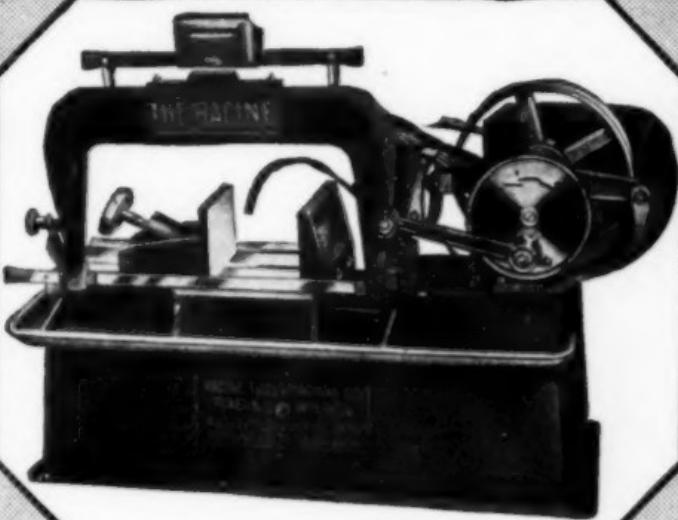
Eliminates Oxyacetylene cutting and plate planing

Write for catalogue No. 60



Patented June 3, 1913; Aug. 26, 1921.

THE QUICKWORK COMPANY, St. Marys, Ohio, U.S.A.
Cable Address "Quickwork." Codes: W. U., General, Bentley's, Lehigh's, ABC 5th Edition



"RACINE" High Speed METAL CUTTING MACHINES

Look at the Chips

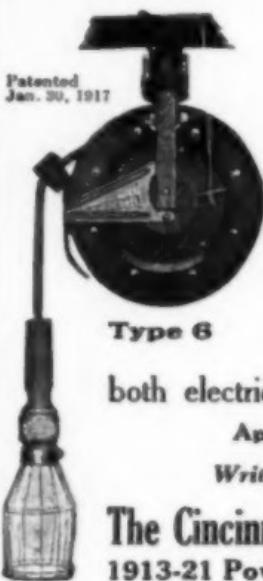
When you cut with a "Racine" High Speed Metal Cutting Machine you will always find the chips on one side of the work. This proves that the "Racine" **mechanical lift** **always** lifts the blade clear of the work on the non-cutting stroke. Others claim this feature but the "Racine" attains it. This not only saves blades but assures accuracy and speed impossible in any other machine.

Get the full facts on Racine High Speed Metal Cutting Machines. It means time and money to you.

Racine Tool & Machine Co.
Catalog H. RACINE, WIS., U. S. A.

Mechanical Lift-Positive Draw Cut

Patented
Jan. 30, 1917



Type 6

"Autex" Extension Reel

Rapidly finding a place in the largest industrial plants, machine shops, service stations, etc., in the U. S. Used for both electric lamp and power extensions.

Approved by Underwriters

Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1913-21 Powers St., Cincinnati, Ohio

Saves Time and Material

Cuts Hardened Steel Rods or Bars, Reamers, Taps, Copper and Brass Tubing, Aluminum, Etc., Quickly, Smoothly and Without Waste

Peter Bros. Ball Bearing Abrasive Cutter

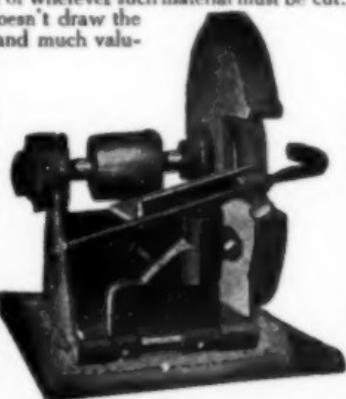
— is a big economy in the tool room or wherever such material must be cut. Has a rapid, thin, clean cut. Doesn't draw the temper, saves grinding, saves time and much valuable material. Soon earns its cost.

8" Size \$22.50, with C. S.
Splendid for tool room. Cuts high-speed steel up to $\frac{1}{4}$ " square.

12" Size \$60, with C. S.
Cuts up to $2\frac{1}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

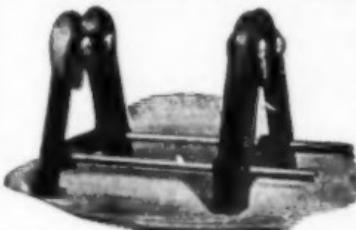
15 Days' Free Trial

Write us or ask your dealer
PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.



Anderson Ever-Ready Balancing Ways

Balance 'most anything that revolves



Quickly determine balance of a piece, also test straightness of shafts, crank shafts, etc. Spindles so made that they can be hardened, glass hard, without danger of breakage. They do not become indented or lose accuracy in ordinary usage. Extremely sensitive.

"Swing"	20"	40"	60"	72"	96"
Greatest distance between standards	20"	30"	30"	66"	88"
Capacity in lbs.	1000	2000	2000	5000	10000
Approx. shipping weight	45	90	150	350	650
Code	Bend	Bid	Bis	Bib	Ben

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.
1915 Kishwaukee St., Rockford, Ill.

Giant "CanTon" Lifts Three Tons



The "CanTon" Portable Crane, Hoist and Truck enables one man to do the lifting and lug-
ging which ordinarily requires the com-
bined efforts of 6 to 10 men. 'Nuff sed.

That it will pay for itself in a short time,
is a foregone conclu-
sion.

Write for Bulletin E-8

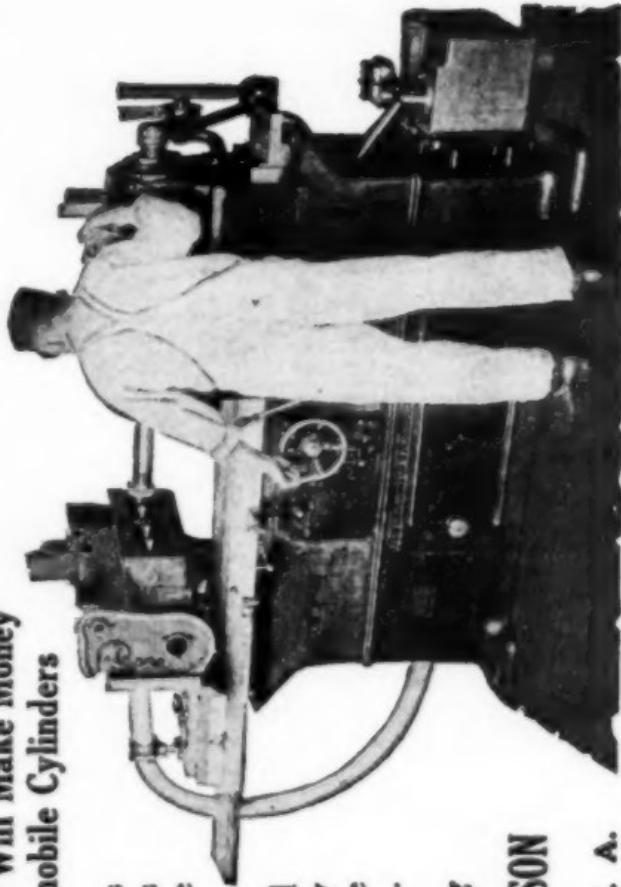
Canton Foundry and Machine Co.
Canton, Ohio

New York Office: 45 West 18th Street, Second Floor

AUTO REPAIR SHOPS

The Whitney Cylinder Grinder Will Make Money
For You Regrinding Automobile Cylinders

The grinding wheel travels in a true circle and grinds off only enough to make a hole that is round and straight. This machine does the work right and does it quick. That's why you can do a profitable business with a Whitney.



Write for new catalog

BAXTER D. WHITNEY & SON
Incorporated
WINCHENDON, MASS., U. S. A.

-BLOUNT-

Ball Bearing



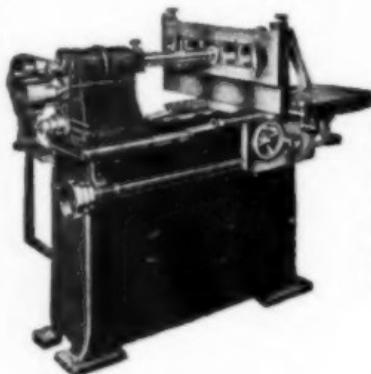
Motor Grinders

Ask your dealer for prices

J. G. BLOUNT CO., Everett, Mass.

Regrinds 6 Ford Blocks a Day

And Larger Cylinders in Proportion



The "SCHMIDT" Internal Grinder

Regrinds ALL makes and sizes of tractor, truck and automobile engines.

Rugged in construction, simple in operation, and its work is the best.

A money maker for auto repair shops

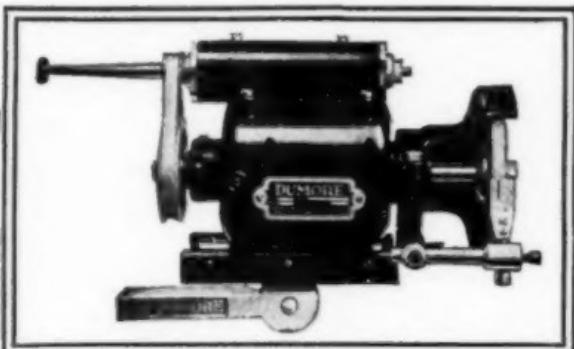
Better send us your name today for full particulars

B. L. Schmidt Co., Dept. A 8, Davenport, Ia.



If looks would sell your machines, Balcrank Handles would be your main selling point. However, the appearance is only one of their fine points. For instance, they are economical. The Ball Crank shown is only one of our many standard types of Handles. May we show you our interesting line?

The Cincinnati Ball Crank Co.
Oakley, Ohio



No. 2-A.G. Grinder, 30,000 R. P. M.

ATTACHED in a moment to lathe, shaper or milling machine, the No. 2-A.G. DUMORE is instantly busy on internal work, or grinding flat, concave or convex surfaces. And doing it all without the tearing down of original set up!

Light in weight, coming completely equipped with endless canvas belt, cutter grinder rest, cross-feed lever, cord, plug and hardwood carrying case, this efficient grinder offers to alert buyers an opportunity to make a paying investment.

Your dealer sells the DUMORE No. 2-A.G. Ask him about it **today!**

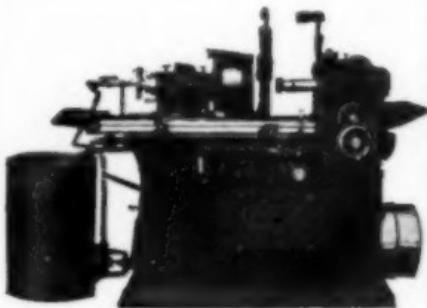
WISCONSIN ELECTRIC COMPANY
4348 Sixteenth Street, RACINE, WISCONSIN

DUMORE HIGH SPEED **GRINDERS**

"HYDROIL" Internal Grinder

for
Greater Production
**BELL-MOUTH
ELIMINATED**
Accuracy
Finish

This machine has a table speed up to 30 odd feet a minute. On short strokes it will reverse 300 times per minute without shock or hand operation.

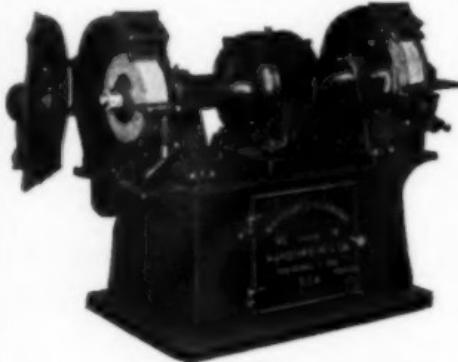


We will be pleased to give you complete details in substantiation of our claims. Write for bulletin G280H.

MACHINE TOOL DIVISION



For Economical Production Use Marschke Up-To-Date Heavy Duty Grinders



Efficient and safe, the kind demanded by modern shops and modern conditions. There's ample metal to eliminate vibration.

Complete exhaust system; a patented hood gives greater safety; SKF ball bearings thruout; enclosed motor construction, a. c. or d. c., and other good features.

Improved Grinders in various types and sizes. What do you need?

**Marschke Mfg. Co., Inc., Indianapolis,
Indiana**



GENSCO

Oil Hole Cover

To attach "Gensco" Covers, drill a hole—requires no tapping and assembling with screw driver. Save you money—are neat—cannot be lost off machine. All oil goes in the hole. May be used on the side as well as on the top—the Spring Feather holds them in place.

Millions in daily use.

1/4-inch mostly used.

Net Prices the Thousand:

5/32-\$32.50 1/4-\$35.00 5/16-\$37.50

GENERAL SCREW COMPANY

Cincinnati, Ohio, U. S. A.

Manufacturers of Screw Machine Products.



Style "A"



The Hinge



Style "U"



Style "B"



Style "G"



Style "O"



Style "L"



Style "T"

GITS OIL CUPS

Give perfect satisfaction where others fail. State style and size in which you are interested, and we will send free samples and catalog.



Style "H"

GITS BROS. MFG. CO
1940 SO. KILBOURN AVE., CHICAGO



We offer for the first time a
Startling New Feature
in quick acting Hydraulic Presses.
We have recently developed an
Automatic Controlling Valve

by means of which the ram movement of a press is controlled automatically to any predetermined length or pressure. Repeat strokes can be made continuously.

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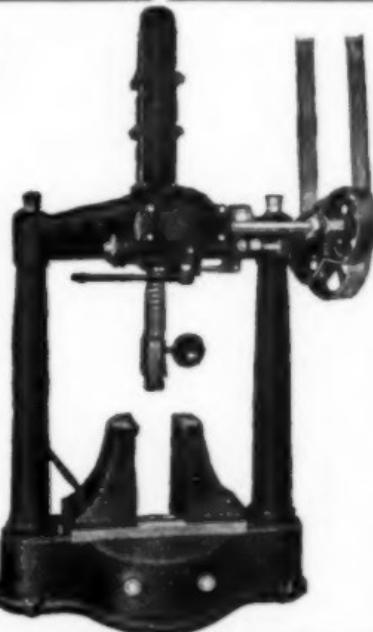
LOURIE MFG. CO.
SPRINGFIELD, ILL.

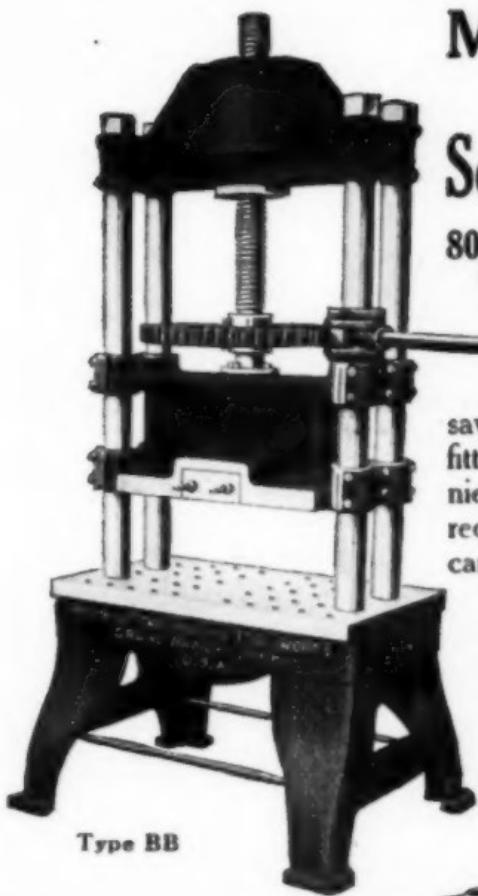
ATLAS 30 Ton Power Press

will give you greatest possible efficiency on your production work.

ATLAS Presses are built in all sizes and types.

Atlas Press Co.
Kalamazoo, Mich., U.S.A.





Type BB

Manhattan 4-Post Screw Press

80,000 lbs. Pressure
Table, 20" x 36"

A *one-man machine* which saves hours of time in fitting dies—so convenient that the tool maker requires no help. Die can be mounted on the large bed in any desired position. Affords perfect alignment between punch and die. Also made in three smaller sizes.

Manhattan Grinder

A surface grinder that is silent, powerful and accurate. Non-vibrating wheel. Has many special features of merit.

Get our literature

**MANHATTAN MACHINE
AND TOOL WORKS**

Dept. A

GRAND RAPIDS,

MICHIGAN





Threading Tool



Right Hand Off-set Side Tool



Right Hand Turning Tool



Armstrong Bros. Tool Co.

"The Tool Holder People"

308 N. Francisco Ave., Chicago, U. S. A.

ARMSTRONG Tool Holders

They Save—

High speed steel, 90%

Grinding, ----- 70%

Forging, ----- 100%

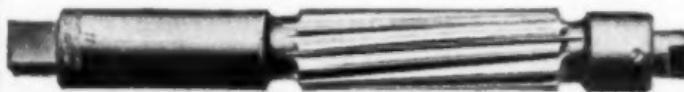
Over 100 tools for
Lathe, Planer, Shaper,
Slotter, etc.

Get the free Catalog

"MICRO-SET" HAND Expansion Spiral Reamers

Cut Fast and Smooth

Will Reduce Your Reaming Costs



**Micrometer Expansion
Large Range of Expansion**

Unsurpassed for reaming Standard or Over-sized holes.

The reamer for production work. Also made with straight flutes and in all sizes.

Descriptive circular and price-list upon application

The Schellenbach-Hunt Tool Co.
116-124 Opera Place,

Cincinnati, Ohio

F. E. TIGHE SALES CO.
2953 Montgomery Ave.
Detroit, Mich.

AGENTS
HAYDEN SUPPLY CO.
1211 St. Clair Ave.
Cleveland, O.

H. E. BARTON TOOL CO.
104-08 S. Jefferson St.
Chicago, Ill.

Diamond Alloy

A Superior High-Speed Cutting Tool
Cast to Accurate Form

**"You Can't Operate
a Punch Press on a
Slack Belt."**

Milling Cutters
Lathe and Planer Tools
SLITTING SAWS
Insert Blades for all types
of cutters.

Diamond Alloy
Heat Resisting and Wear Resisting

P. H. BIGGS

Exclusive Sales Agent

1235 W. 9th St., Cleveland, Ohio

DO You Use AIR?



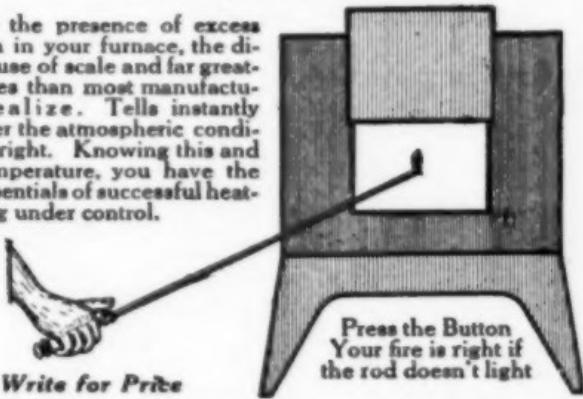
Second-Hand Wood-Working Machinery

For a large list of used wood-working machinery, consult the **Wood-Working Machinery List**, a publication similar to this but devoted to the advertising of saw-mill and wood-working machines. A copy may be had on application to the publisher, **A. H. Hitchcock, 1220-1235 Caxton Building, Chicago, Ill.**

Something New — And Good

The Bennett Detectorod

Shows the presence of excess oxygen in your furnace, the direct cause of scale and far greater losses than most manufacturers realize. Tells instantly whether the atmospheric condition is right. Knowing this and the temperature, you have the two essentials of successful heat-treating under control.



Write for Price

Press the Button
Your fire is right if
the rod doesn't light

Bennett Metal Treating Co.

Elmwood, Conn., U. S. A.

Also ask us about the Bennett Furnace



Is More Efficient than Cyanide

Besides that it is SAFE, being non-poisonous. It is rapidly replacing cyanide in thousands of factories. It gives a better, cleaner, glass-hard case. Carbonizes at a lower temperature, saving furnace linings and fuel. Eliminates crystallization, warping and blistering. Does not deteriorate with age. Made in two grades—M for melting furnace, S for sprinkling.

Tri. B. Brand Pack Carbonizer

is a light, fast, long-lived carbonizing agent for use in boxes in a muffle furnace. Gives full value for every dollar spent. A trial order is all we ask.

**C. G. BUCHANAN CHEMICAL CO., Cincinnati,
Ohio—St. L.**

Often Cuts Time In Two

Underwood's Portable Miller is Deservedly
Popular in Railway and General Repair Shops



Figure 110

ITS RAPID, accurate, time-saving work satisfies everybody. It enables shops of every size to accomplish a wide range of rush repairs *in place*. The saving is obvious.

Figure 110 has power feed in both directions, and is usable in any position, horizontal, vertical or inclined. It faces a valve seat $22 \times 40 \times 7$ in., or does other milling of similar dimensions. Operated by hand, small steam engine, air or electric motor. We can build to suit your special needs. Our line of Portable Tools includes:—

Millers; circular planer tools; radius planers; rotary planers; machines for truing eccentrics, facing domes, arms for facing cylinder flanges; rotary flue cleaners; pipe benders; locomotive cylinder borers; boring bars for lathe work; crank pin turners and reflex water glass grinders. We build special machines to order.

Write for the Catalog—it pays to have one handy

H. B. Underwood Corporation

1015-25 Hamilton St., Philadelphia, Pa.

Second-Hand Machinery

Lists of Second-Hand Machinery, either for sale or wanted, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool List advertisers.

FOR SALE BY

H & H Machine Co., - - - **4274 Easton Ave., St. Louis, Mo.**
Grinder, No. 2 Cincinnati, plain.
Planer, Lodge & Davis 24"x24"x6' bed.

FOR SALE BY

The Acklin Stamping Company, - - - **Toledo, Ohio**
SCREW THREADERS.
Two Waterbury Farrel Standard Screw Threaders No. 30, one never set up
and one slightly used.

FOR SALE BY

Reliance Machinery Sales Company

Brighton Road at Pennsylvania Ave., - - - **Pittsburgh, Pa.**
Air compressor, Ing.-Rand, 1750 cu.
ft., m. d.
Boring mills, 54" & 60" Bullard, 2 hds.
Boring mill, 90" Niles, 2 heads.
Drills, upright, 10" to 36".
Lathes, 8" to 48" — real bargains.
Millers, all sizes, plain & universal.
Miller, 30"x30"x9' Ingersoll slab.
Over 200 Machines in stock. What have you for sale?
Inquiries solicited.

Pipe machines, 2", 4", 6", 8" & 12".
Press, No. 3½ Bliss, toggle.
Press, No. 59 Toledo.
Punch, Beatty, 14"x1", 42" th., m. d.
Shapers, 14", 16", 20", 24" & 32".
Straightener, Shuster, 3" wire.
Tapper, 4" Acme, 6 spindle.

FOR SALE BY

The Randle Machinery Co., 1723 Powers Street, Cincinnati, Ohio

ENGINE LATHES.

18"x 8' Lodge & Shipley, q. c. \$550.	28"x12' Fay & S., loose chg... \$ 600.
16"x 6' South Bend, loose chg. 300.	30"x16' Prentice, loose chg ... 800.
18"x 8' Barker, loose change... 450.	36"x24' American, quick chg.. 2350.

PLANERS.

30"x30"x14' American, two heads, belt drive.....	\$ 1,500.
36"x36"x14' American, two heads, belt drive.....	1,800.
Pedrick & Ayer open side, planes 30" wide, bed 11' long.....	1,000.
60"x60"x12' Sellers, widened to 72", four heads.....	2,500.

MISCELLANEOUS.

Boring mill, 60" Niles vert ... \$1,500.	Miller, No. 2½ Rockf'd univ.. \$ 800.
Boring mill, 10' Niles vert.... 4,500.	Millers, No. 1½ American pl... 775.
Boring mill, No. 2 Barret, 24x15 1,600.	Miller, No. 1½ American univ .. 1,000.
Drill press, 45" upright, back geared, power feed..... 300.	Radial drill, 6' Bausch-H. pl., 650.
Grinder, No. 60 Heald cylinder 1,250.	Shaper, 16" Barker, b. g. crank 450.
	Shaper, 24" Barker, b. g. crank 625.

Many other bargains. Send us your requirements.

SECOND-HAND MACHINERY

FOR SALE BY

The W. M. Pattison Supply Co., - - - Cleveland, Ohio
Main Office, Show Rooms and Warehouse.

Boring mill, No. 1 Cleveland, horizontal, complete.
Drill, Hoefer, 26" sliding head, b. g., p. f.
Drill, 3½" Dreses plain radial.
Grinding machine, universal, Webster & Perks No. 1, 10"x30".
Grinding machine, universal, Bath No. 1.
Lathe, 14"x 6' Bradford, c. r.
Lathe, 14"x 6' Rockford, d. b. g., quick change gear and c. r.
Lathe, 16"x 8' Flather, q. c. g., d. b. g., with c. r., taper, draw-in attachment
and relieving attachment.
Lathe, 18"x 8' Bradford, quick change, d. b. g. and c. r.
Miller, universal, No. 3-B Hendey, complete.
Miller, plain, No. 3-G. H. Hendey, complete.
Miller, vertical, No. 5-C Becker, complete.
Miller, plain, No. 9 Brown & Sharpe, with pump.
Planer, 28"x26"x8' Cleveland open side, two heads.
Shaper, 17" Averbeck, b. g., complete.
Shaper, 18" Potter & Johnston, complete.
Shaper, 24" Potter & Johnston tool-room, complete.
Turret lathes, universal, No. 2-B Foster (2).
Turret lathes, universal, No. 1-B Foster (2).

This is a partial list. We have a complete assortment on hand.
Write us and state your requirements. Correspondence solicited.

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago

Special Bargains—Pre-War Prices.
MILLING MACHINES.

No. 2 Rockford univ., vert. attach.
No. 1½ B. & S., heavy, single p. d.
No. 2 B. & S. plain, single pulley.
No. 2 Brown & Sharpe vertical.

No. 3 Ingersoll vertical.
No. 5 Becker, vert. rot. table.
Knights, 3 different sizes.
Transit heavy production (2).

PRESSES.

New Doty b. g., 24" throat.
No. 48 Perkins, b. g.
No. 2 Moore screw press.
No. 1½ Consolidated, plain (2).

No. 5 Toledo, plain.
Consolidated, bench (3).
7"x36" Corrugating machine.

PLANER AND SHAPERS.

48"x12" American, 2 heads.
14" Steptoe.

16" American, b. g.
20" Smith & Mills.

LATHES.

36"x14" Niles Bement, q. c. g.
28"x12" Niles Bement, q. c. g. (2).
24"x10" American, q. c. g.
24"x10" Fifeild.
20"x 8' Monarch, q. c. g.

18"x11" Reed, tap. attach.
18"x 6' Hendey, q. c.
16"x 6' Hendey, q. c.
14"x 6' Lodge & Shipley, q. c. g. hd.

RADIALS AND DRILL PRESSES.

6' Reed Prentice, reverse attach.
32" Cincinnati, reverse attach.
24" Foote-Burt heavy.

25" Kokomo high speed.
24" Henry & Wright high speed.
4 spdl. Henry & Wright, 1" cap.

MISCELLANEOUS.

Air compressor, 8"x9 Ingersoll, belt
drive.
Band saw, metal, 30".
Bolt cutters, 3" & 4" Acme, 2 sp.
Gasoline hoist, Sembrow.
Gear cutter, No. 5 Brown & Sharpe.
Grinder, Van Norman ball bearing.
Carload of 16"-20" Drill Presses, Kick Presses, Small Tools, Chucks.
Milling Machines, Vises, etc. We can save you some money.

Keyseater, No. 2 Davis.
Keyseater, No. 3 Becker.
Metal separator, Milwaukee.
Rollers, 6"x40".
Rollers, 12"x10".
Shear, circular, 48".
Shears, pwr. sq., 72" and 30", 16" cap.

SECOND-HAND MACHINERY

FOR SALE BY

Russell Machine Co., - 28th St. & A. V. R. R., Pittsburgh, Pa.

LATHES.

- 60"x26' Gleason, triple geared.
- 48"x32' N. B. P., triple geared.
- 45"x28' Niles, c. r.
- 48"x28' Pond, triple geared.
- 28"x12' Boye & Emmes, q.c.g., d.b.g.
- 26"x12' Pittsburgh, dbl. b. g.
- 26"x29' 6" Putnam, b. g., c. r.
- 26"x10' 6" Walcott, q. c. g.
- 24"x16' 6" Johnson lathe.
- 24"x12' New Haven.
- 24"x11' Reed, c. r.
- 19"x10' LeBlond, motor drive.
- 19"x 6' Bullard, c. r., b. g.

PLANERS AND SHAPERS.

- 24"x24"x8 Chandler planer, 1 head.
- 48"x48"x22' Pond planer, 4 heads.
- 72"x36"x12' Betts planer, 2 heads.

DRILLS AND BORING MILLS.

- 20" Barnes "camel back".
- 20" Champion, new, pl. w. & l.
- 20" Silver, new, b. g., p. f.
- 30" Gould-Eberhardt, b. g., upright.
- 30" Prentice and 36" Snyder, b. g.
- 40" New Haven, b. g. drill.
- 2', 4', 6' & 7' Prentice radial drills.
- 6', 8' & 8' Pond radial drills.
- 2' Fosdick, 9' Baush radial drills.
- Burke Nos. 0 & 1 sensitive drills.
- Champion post drills, 1" & 1".

PUNCHES, SHEARS.

- L. & A. size C, multiple punch.
- 50" throat Reade sgl. end, punch and shear; massive construction.
- Cleveland punch & shear, 18" throat.
- No. 6 L. & A., 24" throat.
- No. 15 Buffalo punch, 4x4".
- No. 4 Doeiger & Kirsten alligator shear, cap. 4" round soft steel.
- Garrison m. d. alligator shear, 18" knife, cap. 3" square, 36000 lbs.
- Niagara plate shear, 97"x4".
- Morgan plate shear, 96"x1", thick.
- Garrison plate shear, cap. 3"x81", m.d.
- Waterbury-Farrel rotary sh.. 14" thr.

MISCELLANEOUS.

- Air compressor, No. 0 Au-To 3"x4".
- Air compressor, Caldwell d. c. 3½x4.
- Air compressor, 8"x8" hor. b. d.
- Air compressors, Bury 10x10.
- Band saw, Greaves-Klusman 36".
- Band saw, Kane-Roach 30".
- Blower, Sturtevant, No. 4, volume.
- Blowers, Buffalo No. 7-8 vol.
- Blowers, Root No. 5 rotary.
- Bolt cutter, Landis 1½".
- Brazing table, all iron, 17"x29" x31".
- Bulldozers, Nos. 4 & 6 Williams-W.
- Cold saw, Wagner, size 18 type 3.
- Corner treader, American No. 65.
- Crane, 10" I-beam, 12' 3" span.
- Cranes, portable 2 & 2½ ton.
- Engine, gas, 18 h. p. Feuer.
- Forge, No. 41 Champion new.
- Grinder, Greenfield cutter & tool.

- 18"x 8' Sidney, q. c. g., d. b. g.
- 18"x 8' Rahn-Mayer-Carpenter.
- 16"x 6' Columbus, q. c. g., new.
- 15"x 8' Schellenbach, d. b. g., h. s.
- 14"x 6' Lodge-Shipley, q. c. g.
- 9½"x 4' South Bend, c. r., h. s.
- 3"x36" J. & L. turret.
- 24"x 6' Gisholt turret, 64" h. s.
- 24"x 6' Gisholt tur., 64" h. s., m.d.
- 10"x 4' Blount speed lathe.
- 11"x 3' Blount speed, (12).
- 14"x 5' American speed lathe.
- 18"x7' Wood lathe.

PLANERS AND BORING MILLS.

- 14" G. & E. sgl. grd. shaper.
- 24" Cincinnati b. g. cr. shaper.
- 24" Stockbridge, b. g., cr.
- 30" Bullard and W. & S. bor. mills.
- 36" Bridgeport boring mill.
- 42" Bullard rapid production.
- 42" & 50" Bullard bor. m., 2 heads.
- 62" Colburn boring mill.
- 72" Pond boring mill, 2 heads.
- 90" Niles boring mill, 2 heads.
- 7' & 8' Betts, 2 heads.
- 10' Pond boring mill, 2 heads.
- 10' Niles boring mill, 2 heads.
- 10/16' Betts boring mill, 2 hds.

PRESSES AND ROLLS.

- Mesta plate shear, cap. 4"x156".
- Carlin alligator shears, 28 cap.
- Niagara pr. sq. shears, 36" 72"-96".
- Schatz punch and shear, 7½" throat.
- 500 ton steam hydraulic press.
- 300 ton horiz. hyd. wheel press.
- No. 56 dbl. housing knuckle press.
- Stiles No. 3 inclinable press.
- Bliss No. 18 o. b. i. power press.
- Bliss No. 769 s. s., d.g. press, 8" str.
- Corry Mch. Co. press, 12" stroke.
- Straight-side punch press, 4" str.
- Ferracute foot presses.

- Grinder, Diamond No. 3 wet tool.
- Grinders, Plymouth Nos. 13, 14, 17.
- Hammers: 1500 lb. Bement steam drop; 2500 lb. Chambersburg dbl. leg; 2000 lb. B. M. sgl. leg steam forg.
- Hammers, 80 & 100 lb. Bradley.
- Hoist, contractor's steam, with 8 h. p. boiler & 8 h. p. engine.
- Millers, pl., Garvin No. 12, Cinti. No. 3.
- Paper cutter, Golding 36".
- Pipe machines, 3", 4", 8".
- Polishing stand, d. end, 42"x3" arbor.
- Polishing stand, Cuyahoga dbl. end.
- Ripsaw, table, 49"x30".
- Roll lathe, United Engr. 26"x18".
- Saw, West Haven, hack, 6"x6".
- Slotted, Niles 15".
- Straightening rolls, 8x10 Cleveland.
- Wiring machines, Pexto, bench.

SECOND-HAND MACHINERY

FOR SALE BY

McDonald Machinery Co., 1531-33 N. Broadway, St. Louis, Mo.
 "Machinery is our Middle Name"

Air compressors, 4x4, 6x6, 8x8.
 Boring machine, Rockford horiz.
 Bulldozer, W. & W. No. 24.
 Cold saw, Lea-Simplex No. 18.
 Cut-off mch's., Davis 6", H. & R. 4".
 Drill presses, all sizes, single and multiple spindle.
 Gear hobbers, No. 3 Farwell and Garvin double spindle sprocket.
 Gear shaper, 36" Fellows.
 Grinders, cylindrical, surface, knife, univ., centerless, emery stands.
 Lathes, large stock both new and good used, all sizes.

Keyseaters, LaPointe, Davis No. 2.
 Milling machines: Bristol, Brown & S., Becker, Hendey, Kempsmith, Steptoe, Ohio, plain and universal; Becker s. d. vertical; Briggs B-72".
 Planers, 24"x24"x6" Ohio and Am. Presses, Niagara, Swaine, Ferracute, Bliss straight and inclinable.
 Rivet spinners, vertical and horiz.
 Screw machines, Foster, P. & W. 4 Gridley auto. 4 spindle 24".
 Shapers, 16, 20, 24" Cincinnati b. g., 24" Gould & Eberhardt, 16" Hendey.
 Wood-Work'g & Sheet Metal Tools.

FOR SALE BY

Tubor, Velick & Co., Inc., - Lake & Desplaines Sts., Chicago, Ill.
 Telephone: Monroe 4199

New and Used Machines.

PUNCH PRESSES.

No. 60½ Bliss, (4).
 No. 4 Verdin Kappes, b. g.
 No. 3 V. & O.

No. 33 Consolidated.
 No. 3 Am. Can, dbl. action (2).
 No. 25 Niagara.

DRILL PRESSES.

20" Canedy-Otto, (20).
 20" Barnes, (20).
 30" sliding hd. (3), different makes.
 20" to 30" Silver and Rockford (20).
 Bench drills, with chucks (25).

3-spindle Hoefer, (4).
 3½ radial, Canedy-Otto.
 4 radial, Niles.
 4 radial, Mueller.

MILLING MACHINES.

No. 15 Garvin plain.
 No. 3 Cincinnati universal.
 No. 9 Kempsmith.

Fox millers, power feed, (15).
 Bristol millers, plain, (15).

SHAPERS.

24" Gould & E., b. g. crank.

LATHES.

Bench lathes, (4).
 12"x 5' Davis, (2).
 16"x 8' Robinson.
 16"x 8' South Bend.
 16"x 6' Rahn-Carpenter.
 16"x 8' Canedy-Otto.
 16"x 10' Hamilton.

18"x 7' Lehmann, q. c.
 18"x 8' Bradford.
 18"x 8' Sidney.
 18"x 10' American, (2).
 20"x 8' Hamilton, q. c.
 20"x 14' Le Blond.
 22"x 18' Wickes.

GRINDERS.

No. 15 Besly, disc.

No. 1 Brown & Sharpe universal.
 No. 14 Besly, disc, (3).

POWER HAMMERS.

25-lb. capacity, Bradley.

SCREW MACHINES.

100-lb. capacity, Bradley.

No. 2 Smurr & Kamen.
 No. 3 Smurr & Kamen, (8).

Foster screw machine.

MISCELLANEOUS.

Planer, 36"x36"x14' Niles.
 Shear, rotary, 60" Pettingell.
 Shear, 52" Niagara power square.
 Shear, 11' power square.
 Toilet sets, Low-down, 100 sets.
 Trucks, 3 lifting.

Band saws, 20-28-32".
 Folder, 36".
 Jointers, 12" and 16".
 Motors, all sizes, a. c. and d. c.
 Paper box sticher, Latham No. 2, new
 Paper balers, (100).

Tons of leather belting. Pulleys, shafting and hangers.

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company. - **111 Broadway, New York**
Located at our various factories and stores.

LATHES.

14" x 8' Whitcomb, q. c.	32" x 12' Pond, c. r.
17" x 6' & 8' LeBlond geared head.	36" x 20' Pond, 220 volt, motor, d. c.
20" x 10' LeBlond, q. c.	42" x 28' Niles, triple geared.
24" x 10' Whitcomb, q. c.	48" x 30' Niles, triple geared.
26" x 10' Pond, 220 volt motor, d. c.	54" x 28' American, 220 volt motor, d. c.
24" x 24' Niles, c. r.	
28" x 12' Pond, c. r.	

TURRET LATHES.

No. 6-A P. & J., 220 volt motor, d. c.	2" x 24" Jones & Lamson, cone head.
1", 2", and 2½" P. & W.	24" & 28" Gisholts.
2" x 24" W. & S. hollow hex.	32" Conradson American.

PLANERS AND SHAPERS.

14" & 20" G. & E. shapers.	36" x 36" x 8' to 25' belt drives.
20" Stockbridge shaper.	42" x 42" x 14' Bement, 4 heads.
24" x 24" x 6' Powell.	48" x 48" x 20' Bement, 4 heads.
24" x 24" x 6', 8' and 10' Whitcomb.	60" x 60" x 14', 20' & 24' Niles.
26" x 26" x 6' Gray.	72" x 72" x 12' Bement, 4 heads.
30" x 30" x 6' & 10' Ponds, 2 heads.	72" x 72" x 20' heavy Ridgway, reversing motor.
30" x 30" x 12' Pond, reversing motor.	10' x 10' x 36' Betts, 4 heads.
36" x 36" x 16' Pond, heavy reversing motor.	

MILLERS AND GEAR CUTTERS.

No. 1½ and 2 Brown & Sharpe universal, cone type.	No. 5 Brown & Sharpe vertical, cone type.
No. 2-A Brown & Sharpe universal, all geared.	No. 3, 4 & 6 B. & S. gear cutters.
No. 2-B. & S. plain, all geared.	15" Gleason bevel gear generator.
Nos. 4 & 5 B. & S. plain, cone type.	6" x 18" & 80" P. & W. old style thread millers, also 132" long.

DRILLING MACHINES.

28", 32" and 40" sliding head drills.	4' & 6' universal radials.
3", 4", 5", 6" plain radials.	12-spindle P. & W. No. 13 multiple.

GRINDERS.

No. 8 Higley saw grinder.	12" x 36" Cincinnati, plain.
8" x 30" Fraser universal.	12" x 40" No. 3 Brown & Sharpe universal.
10" x 72" Norton plain.	

BORING MACHINES.

2" Bar 4' W. & S. horizontal.	3" Bar No. 1 Lucas horizontal.
2" Bar 5' Binssse horizontal.	4½", 5" & 6" Niles floor borers.
2½" Bar 6' & 8' Bement horizontals.	42" and 51" Niles vertical mills.
4" Bar 8' Niles horizontal.	60" Bement vertical mill.
4" Bar 9 & 10' Bement horizontals.	10" Niles, 220 volt motor, d. c.

MISCELLANEOUS.

Air compressors, 215', 535' and 835' capacity.	Graduating machine, LeBlond.
Blowers, No. 10 Sturtevant; No. 70 Buffalo.	Hammer, 750 lbs. Sellers.
Crane, 3-ton Niles, 14' 3" span, d. c.	Hot blast apparatus, 120" fan engine, Sturtevant.
Crane, 20-ton 48" span, Sellers, d. c.	Motors, 5 to 100 h. p., d. c.
Engines, 125, 150 and 200 h. p. Philadelphia Corliss.	Pump, 500 gal. steam drive.
Generator set, 100 k. w., d. c., and engine.	Saw, 8" rounds. Higley.
	Screw shaver, No. 2 P. & W.
	Separator, oil, No. 1 American.
	Slotted, 6" Bement.

SECOND-HAND MACHINERY

FOR SALE BY

Scott-Bansbach Machinery Co.,

Punch, sgl. end, 30" L. & A., 14" thru 1",
Automatic, 4-spindle 14" Gridley.
Boring mill, 36" Colburn vertical,
with turret head.
Boring mill, 36" geared hd., adjustable rail, single turret head.

32 N. Clinton St., Chicago

mtr. dr. with 10 h. p., 220 v., a. c. mtr.
Drill, No. 310 Baker hvy. duty, 3" cap.
Grinder, No. 2 B. & S. surface.
Grinder, univ., 10x32 Landis No. 18.
Miller, No. 2 Rockford, grd. hd., pl.
Planer, 38"x38"x10' Gray, 1 head.

FOR SALE BY

The H. A. Smith Mch. Co.,

Air compressor, 10x8 Ingersoll-Rand, class ERI.
Gear generators, bevel, 8" Gleason (2).
Gear generators, bevel, 18" Gleason (6).
Grinders, plain, No. 11 Brown & Sharpe, late style (4).
Grinder, face, 84" Diamond, with 30 h. p. motor.
Grinder, universal tool and cutter, Norton No. 1.
Lathe, 14"x6" Monarch.
Lathes, 16"x8" Monarch (5).
Lathe, 16"x8" Walcott.
Multi automatic, serial number above 10500.
Millers, pl., No. 2 Kempsmith (2).

501 E. Water St., Syracuse, N. Y.

Miller, univ., No. 3 Kearney & T.
Pinion blockers, 2-sp. Gould & E., serial number above 3100 (3).
Pinion blocker, 8-sp. Gould & E., serial number above 3300.
Profiler, No. 4 Garvin, pwr. rty. tbi.
Punch press, Rockford No. 316, grd.
Punch press, Jordan No. 3, fly wheel.
Radial blast sand blast barrel, 36x44
No. 3 Standard.
Screw machine, hand, No. 0 B. & S.
Screw machine, 4-spindle automatic, 28" National Acme.
Screw mch., Warner & Swasey No. 4, with air chuck equipment (6).
Turret lathes, 3x36 Jones & L. (3).
Turret lathes, univ., 16" Acme, friction head, chasing bar (2).

FOR SALE BY

P. Pryibil Machine Co., Inc. 512-524 W. 41st St., New York, N. Y.

LATHES.

14"x 6' stud and bolt, P. Pryibil.
16"x 6' polishing, P. Pryibil.
20"x12' safety stops, taper attachments, Lodge & Shipley.
24"x14' q. c. g., Lodge & Shipley.

30"x16' q. c. g., Pond.
30"x32' back geared, shaft lathe.
26"x12' q. c. g., Lodge Davis.
40" raised 50"x14", q. c. g., Pond.

MILLING MACHINES.

64"x16" table, spindle cone, Cinn.
DRILL PRESSES.
9" Pulley drilling & tapp. P. Pryibil.
12" post drill, 11x18" table, hand feed, P. Pryibil.
12" sensitive, 11"x11" table, Washburn Shops.
12"x4 spindle, 36"x12" table, Reed.
12 spdl. mult., 15"x24"tbl. Baush.

68"x16"tbl., s. box and pump, Cinn.

PULLEY LATHES.

36" dia. x24" face, 2 heads, Niles.
PLANERS AND SHAPERS.

50" dia x30" face, 2 heads, Niles.

16" stroke, self-feed, Steptoe.
24" stroke, friction gear, Hendey.
26"x26"x 6' one head, Pond.

36"x36"x 6', one head, Pond.
48"x48"x16" open side, Detrick & Harvey.

BORING MILLS.

50" pulley borer, power feed, Niles.
60" 2 heads, 67" table, Niles.

84" 2 heads, 67" table, Niles.
84"x38"x3" bed horiz. borer, B. & S.

MISCELLANEOUS.

80" 2 heads, 67" table, Niles.
Air compressor.
Arbor presses, various sizes.
Broaching machine.

Electric drills; air riveters.
Forges and blowers.
Grinders, various sizes.

SECOND-HAND MACHINERY

FOR SALE BY

W. P. Little Co.,

8"x108" Lo Swing.
20"x 8' Kahn-Mayer, c. r.

16" Juengst, friction.
No. 2 Warner & Swasey.
16" Windsor.

Blower, No. 8 Sturtevant.
Bolt cutter, 14" Reliance.
Broach, No. 3-A Lapointe.
Milling machines, U. S., hand, (2).

We buy Used Machinery. What have you to sell?

1616 Columbus Road, Cleveland, Ohio

LATHES,

26"x 9' Bridgeford, d. b. g., & q. c. g.
30"x10' plain turning.

SHAPERS,

20" Kelly, back geared.

TURRET LATHES.

No. 4 B. & O., b. g., f. h. & p. f.
14" Davis & Egan.

MISCELLANEOUS,

Riveter, 1" Shuster.
Shear, foot, 42" Niagara gap.
Slotter, 8" rotary table.
Spline milling machine, 4".

We buy Used Machinery. What have you to sell?

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

12"x 4' Porter-Cable, c. r., q. c. g.,
pan bed, (4).
14"x 6' Hamilton.
13"x 5' Willard, c. r.
14"x 6' Prybil, stud.

TURRET LATHES AND SCREW MACHINES.
14" Lodge & Davis, plain head.
24" Davis turret boring and chucking lathe, with forming rest.
22" Lodge & Shipley heavy duty turret boring lathe.
18" Acme screw mch., p.f. to tur., (2).
No. 2-A Warner & Swasey g. h. turret lathes, (2).
No. 3-A Warner & Swasey g. h. turret lathe.

MILLING MACHINES.
No. 1 Rockford, hand, p. f.
No. 15 Garvin plain, b. g.
No. 22 Garvin, vertical spindle.
No. 1 Cincinnati plain.

GRINDERS.
No. 3 Brown & Sharpe, universal.
No. 1 Detroit Centerless.
No. 10 Cochrane-Bly auto. bench saw filing machine.
No. 1 Brown & Sharpe, univ., (2).

HAMMERS.
Coffman post pwr. dr. hammer 25 lbs.

METAL CUTTING TOOLS & SQUARING SHEARS.
Excelsior power hack saw.
12" Burke metal cold saw.

PUNCH PRESSES.
No. 264 Consolidated, geared, dbl. action cam drawing.

GEAR CUTTERS.
26" No. 3 Brown & Sharpe auto., (2).
60" Eberhardt, spur.

MISCELLANEOUS.
Boring mch., 23" swing, Star horiz.
Boring mill, 34" Colburn.
Brake, 36" P. S. & W. cornice brake,
20 gauge capacity.

18"x 6' Sebastian, c. r., geared hd.
16"x 6' Reed, r. and f.
18"x 6' Blaisdell, p. r. and t. a.
24"x14' Boyce & Emmes, c. r., 3-step cone.

26" Gisholt heavy duty turret lathe.
16" Warner & Swasey, plain head, with air chucks (4).
2" x 24" Jones & Lamson g. h. flat turret lathe.
No. 0 Brown & Sharpe auto., (4).
No. 0 Brown & Sharpe auto., (6).
No. 2 Brown & Sharpe auto., (3).
6" to 1" Model A Cleveland auto., (2).

Valley City, pl., with dividing head.
No. 6 Becker, vert., rotating table.
12" Pratt & Whitney, horiz., auto.

Type "DE" Hisey-Wolf internal.
Gisholt tool grinder.
No. 14-16 Besly, wet ring wheel.
6"x18" Landis, pl., single pulley dr.
No. 11 B. & S. plain grinders (2).

Cady belt drop hammer, 100 lbs.
METAL CUTTING TOOLS & SQUARING SHEARS.
Higley cold saw.
No. 15 Higley cold saw.

PUNCH PRESSES.
No. 69-N Bliss, sgl. action cam, grd.
No. 82 Bliss, straight side, geared.

GEAR CUTTERS.
No. 12 Brown & Sharpe auto., (2).

MISCELLANEOUS.
Drills, sgl. sp. upright sens. (2).
Fender equip., Yoder, complete.
Planers, 32"x22"x5' Putnam, 1 hd., (3).
Polishing lathes, City Machine Co.

SECOND-HAND MACHINERY

FOR SALE BY

E. L. Easley Machinery Co., 551 557 Washington Blvd., Chicago, Ill.

Aircompressor, No. 3 Usaco, 2 stage.
 Bolt cutter, $\frac{1}{2}$ " Acme, single head.
 Bolt cutter, $\frac{1}{2}$ "—1" Wiley & Russell.
 Boring mills, 42" & 60" Bullard vert.
 Boring mill, 60" Betts horizontal.
 Brake, power, 8" Dreis-Krump, 440 volt motor attached.
 Drill, rail, No. 7-D Moline "Hole Hog".
 Drill, No. 17-D Moline "Hole Hog," cap. $4\frac{1}{2}$ " holes or 8— $\frac{1}{2}$ " holes, soft steel.
 Drills, 14" Rockford, gd.
 Drill, No. 310 Baker Bros. heavy duty, 24" swing.
 Drill, 12", 1-spdl. Allen, h.s., b.b.
 Drill, No. 0 Avey, h.s., b.b., $\frac{1}{2}$ " cap.
 Drills, 14" 3-spdl. Allen, h.s., b.b. (3).
 Drills, 14" 4-sp. Allen, h.s., b.b. (10).
 Drills, 14" 6-spdl. Allen, h.s., b.b. (5).
 Drill, No. 1, 6-spdl. Avey, cap. $\frac{1}{2}$ ".
 Gearcutter, No. 3 B. & S. 26"x8" auto.
 Gear miller, No. 18 Bilton auto.
 Grinder, surface, No. 2 W. & M.
 Grinder, 10"x24", No. 1 B. & S. univ.
 Grinder, 10"x72", No. 16 B. & S. pl.

Grinders, 6"x32" Norton pl. cyl. (2).
 Grinder, 15"x15"x6" Norton open-side surface.
 Hammer, 800 lb. Massillon.
 Lathe, multi-cut, No. 2 Reed Prentice auto., gd. hd.
 Millers, hand, No. 1 Standard (2).
 Miller, No. 4 Becker-Brainerd pl.
 Miller, G. & E. plain, table 54"x12".
 Miller, No. 4-B Becker vert.
 Miller, No. 5-B Becker vert.
 Millers, No. 4 Hendey, Lincoln type (20).
 Millers, hand, No. 6 Whitney (25).
 Pipe mch., No. 7, 2" Jarecki, dies, etc.
 Pipe mch., 2 $\frac{1}{2}$ " to 8" "Forbes Pat." C. & C., power, 440 volt motor att.; has dies, tools, etc.
 Planer, 36"x36"x12' W. & P., 2 hds.
 Planer, 42"x42"x10' Gray, 1 head.
 Screw machines, Nos. 2 & 4 W. & S.; 1", 1 $\frac{1}{2}$ ", 2", 3" Cleveland auto.; Nos. 2, 4 & 6 Foster.
 Shapers, 14" Hendey (2).
 Tappers, No. 1 Garvin (2).

FOR SALE BY

The O'Brien Machinery Co.,

Bolt cutter, 1" Acme.
 Bolt cutter, 3" Acme, single head.
 Bolt cutter, 4-sp. Webster & Perks.
 Drill, 5" spdl. Baker Bros. hvy. duty.
 Drill, Avey Hi-speed sensitive with motor attached.
 Drill, Allen 5-spindle, high speed.
 Drill, Allen 6-spindle, high speed.
 Drills, Moline heavy duty hog, (2).
 Drill press, 25" Buffalo.
 Gear cutter, 36" Whiton.
 Grinder, 6"x32" Norton pl. grinder.
 Grinder, No. 1 Norton universal.
 Grinder, No. 2 Norton universal.
 Grinder, No. 2 Acme univ. tool & c.
 Grinder, No. 14 Besly disc, with press.
 Grinder, 2 Wilmart & Moran hand feed surface grinders.
 Hammer, 40 lbs. Williams-White Yeakley, belt drive.
 Hammer, 850 lbs. Williams-W. Y.
 Hammer, 800 lb. Erie City, single frame steam.
 Hammer, 800 lbs. Bement-Miles, double frame steam.
 Hammer, 1200 lbs. Bement-Miles, double frame steam.
 Lathe, 8"x10" Fitchburg Lo-Swing.
 Lathe, 16"x6" Cisco.
 Lathe, 16"x8" Rahn-Larmon.
 Lathe, 18"x9" Lehman.
 Lathe, 18"x10" Monarch.

113 N. Third St., Philadelphia, Pa.

Lathe, 20"x9' Lehman.
 Lathe, 20"x12' Monarch.
 Lathe, 20"x14' Powell.
 Lathes, 21"x30' LeBlond, motor dr.
 Lathe, 23"x12' Blaisdell.
 Miller, No. 25 Bilton plain.
 Miller, No. 2 Brown & S., univ.
 Miller, No. 2-AU Garvin universal.
 Miller, No. 7 Becker Lincoln type.
 Miller, No. 31 Fox.
 Nut tapper, 6-sp. $\frac{1}{2}$ " Acme semi-auto.
 Pipe machine, 6" Stoever.
 Pipe machine, 4" Jarecki.
 Pipe machine, 4" Oster.
 Pipe mch., 4" Oster, motor driven.
 Pipe mch., 4" Jarecki, motor driven.
 Pipe machine, 2" Oster.
 Pipe machine, 8" Curtis & Curtis.
 Planer, 50"x50"x18' Betts.
 Presses, approximately 50, assorted sizes, Waterbury-Farrell Foundry, weights approx. 2,000 to 5,000 lbs.
 Presses, Toledo No. 53 straight sided power, $\frac{3}{4}$ " stroke, (7).
 Riveter, 8"x8" Vulcan.
 Saw, 6" Nutt & Barnes circular.
 Saw, No. 15 Lea-Simplex circ. metal.
 Screw machines, No. 2 Brown & Sharpe, wire feed.
 Turret lathe, No. 6 $\frac{1}{2}$ Bardon & Oliver, wire feed, cabinet base.
 Turret lathes, No. 12 $\frac{1}{2}$ G Garvin, 2" wire feed capacity (4).

SECOND-HAND MACHINERY

FOR SALE BY

The Reeve-Fritts Company. - **37 So. Desplaines St., Chicago, Ill.**

Drill, 14" H. & R., b. b.
Drill, 23" Hoefer, b. g., p. f.
Drill, No. 2 BD Dumore.
Drill, 14" Champion.
Drill, 16" 4 spindle Rockford.
Grinder, No. 2 AG Dumore.
Grinder, No. 1 LaSalle, surface.
Lathe, 14"x6' Hamilton, new.
Lathes, 15"x 6' Rockford.

Lathe, 16"x 8' Flather.
Lathe, 18"x 8' L. & S. pat. head.
Lathe, 26"x12' Bridgford.
Lathe, 11"x 4' Weils, speed.
Miller, No. 0 Bristol, hand.
Miller, Hendey, Lincoln type.
Planer, 31"x31"x14' Powell.
Screw mch., No. 1 W. & S., 1" cap.
Screw mch., No. 2 Foster, 1 1/16" cap.

FOR SALE BY

Herman L. Winterer,

43"x17^{1/2}" Bement-Miles.
42"x16' Niles taper att.
37"x14' Johnson d. b. g., q. c. f., t. a.
32"x12' Pittsburgh, heavy duty, q.c.g.
26"x16' 6" American, q. c. g.
27"x12' Bullard.
26"x11' Wickes, q. c. g.
25"x10' Niles, q. c. g.
25"x14' Hendey, q.c.g., taper attachment, oil pan, (2).
24"x14' Porter.

TURRET

38"x28" Pond, triangle.
3x36" Pratt & Whitney, hollow hex.
20x7' 6" Pratt & Whitney, back grd.
19"x7' Fay & Scott, back grd.
19"x6' American ext. gap, bk. grd.
No. 22^{1/2} Garvin Monitor.

5' Bickford radial.

40" Barnes horizontal radials, (2).
36" Bickford radial, circular base, motor driven.
14" 6-spindle Allen sensitive.
14" 4-spindle Allen sensitive.

DRILL PRESSES.

38"x6" Ingersoll horizontal slab.
No. 5 Cincinnati, table 9x35^{1/2}".
No. 15 Garvin, table 12x42".
No. 3 Becker Brainard, table 12x40".
No. 3 Hendey-Norton, q. c. g.
No. 6Y Brown & Sharpe plain, (2).

PLANERS AND SHAPERS.

45"x48"x16' Pond planer, 3 heads.
30"x30"x8" Putnam planer.
26^{1/2}x26"x 6' Hendey planer.
48" Morton draw-cut shaper.

MISCELLANEOUS.

Boring mill, 100" Sellers, vert., dbl. hd.
Boring mill, car wheel, 60" Newton.
Boring, drilling and milling machine, 17^{1/2}' Bement Niles horizontal.
Grinder, 13^{1/2}"x5" Landis universal.
Grinder, disc, No. 17 Besly.
Grinder, disc, No. 1 Besly.
Hammers, 60 lb. Bellefonte upright; 2.
Keyseaters, 18" stroke Morton, (2).

Keyseater, Mitts & Merrill No. 5.
Punch presses, all sizes, (55).
Punch & shear, Industrial Wks, d. e., capacity 4" in 4", squaring 4"x6".
Slotted, Newton, 20"; cir. table.
Slotted, Newton, 18"; cir. table.
Slotted, Bement 10"; cir. table.
Tooth round'g mch., Chuchard & S.

Large assortment of General Machinery. Send for Complete List.

SECOND-HAND MACHINERY

FOR SALE BY

Norton Broadway Machinery Co., 238 Broadway, Cincinnati, O.

Grinder, universal, No. 3 Brown & Sharpe.....	\$ 750.
Lathes, 26"x18' Bullard screw cutting, motor driven, (2), each.....	900.
Lathe, 52" McF. & N., 16" centers, old style.....	650.
Planer, 24"x24"x6' Gray.....	650.
Planer, 36"x36"x14' Belmer, heavy, 3 heads.....	1,500.
Radial drill, 4' Cincinnati-Bickford, gear box.....	850.

FOR SALE BY

A. M. Stoehr Machinery Co., 844-846 North Wells St., Chicago, Ill.

Blue printing and drying machine, continuous, 42" cap., 220 volt. d. c.
Bolt cutter and tapper, 4" cap.
Boring mill, horizontal, 3" bar.
Drill presses, new, 20", back gear, power feed, each \$120.
Drill press, 4" radial.
Drill pr., 2-sp. Moline "Hole Hog".
Gear cutter, Belton No. 10.
Gear cutter, 24" Gould & E.
Gear cutter, 60" Gould & E.
Grinder, Heald, piston ring, mag. ck.
Grinder, 3x18' Norton.
Grinder, No. 75 Heald.
Grinder, 12"x48" Modern.
Grinder, No. 16 Blanchard, 30" ck.
Lathes, all sizes.
Pipe machine, 6" Jarecki, mtr. dr.

Milling machines, Nos. 1 and 2 universal, also 15 other sizes plain.
Planers, 26x26x16', two heads.
Planer, 28x28x8' Gray 1 head.
Planer, 30x30x12' Gray, 1 head.
Planer, 30x30x12' Lodge & D. 1 head.
Presses, No. 4 Robinson, Nos. 3A & 4 American Can, Nos. 30, 45 & 70 Crosby, No. 15 Wold.
Punch & shear, No. 13 W. & W. Co., 38" throat, arct. jaw, 14" in 1".
Screw machines, No. 1 Pratt & Whitney, Nos. 52 and 53 Acme auto., 14" and 2" Cleveland sgle. spdl., 24" Gridley, sgle. spdl.
Shears, bar splitting and square.
Tapping machine, Tuttle, 4" cap.
Telephone signal call system.

FOR SALE BY

Frank Toomey, Inc.,

127-131 N. Third St., Philadelphia, Pa.

Machine Tools.

LATHES.

42" Pond car wheel, motor dr., used.
36"x16' Sidney, d. b. g., q. c., new.
21"x10' Le Blond, d. b. g., q. c., used.
17" & 15' Sidney, d. b. g., q. c., new.

SHAPERS AND PLANERS.

7" Rhodes shaper, new.
14", 16", 20", 24" Steptoe shapers, new.
20" Cincinnati b. g., used shaper.
36"x36"x14' Ohio planer, 4 heads, belt driven, used.

MILLERS.

No. 28 Becker plain, used.
No. 4 Brown & Sharpe plain, used.

DRILLING MACHINES.

42" Standard pl. rad., gr. box, new.
36" Hamilton pl. rad. cone dr., used.
36" Aurora, b. g., p. f., used.
28" Superior, s. h., b. g., p. f., new.

MISCELLANEOUS.

Automatics, Acme No. 52 mult., used.
Bolt cutter, Lendis 4", used.
Bolt cutters, Greenfield, 1 1/2" & 2" new.
Boring mill, 42" Bullard, vert., used.
Grinder, 10"x36' Norton, pl., used.
Grinder, 8x30" Modern plain, used.
Grinder, No. 1 Fraser, univ., new.

Keyseaters, Nos. 2 & 4 Cattin, used.

Pipe machines, 2", 4", 6" Oster, new.

Slotted, 10", 12" Dill, used.

Turret, Gisholt 21".

Turret, No. 6-A Pottor & J., used.

Turret, Bardons & O. Nos. 1 & 6, w. f.

Turret, Gridley 4-spindle, 24".

SECOND-HAND MACHINERY

FOR SALE BY

Brown Machinery Co., . . .

Boring mill, 60" Sellers, 2 heads.
 Drill, 30" Gould & Eberhardt.
 Drill, 30" Prentice.
 Drill, 24" Sibley & Ware.
 Drill, 26-spindle Baush.
 Drills, 4, 5 & 6 spindle Allen.
 Drill, radial, 3' American.
 Drills, Nos. 1 & 3 Barnes hor. radial.
 Gear cutter, 30" Whiton.
 Grinder, aerial, Cincinnati.
 Grinder, surface, 1 LaSalle.
 Grinder, 14" Besly.
 Grinder, No. 2 Oesterlein univ.
 Grinder, Woods No. 2^{1/2} univ.
 Grinder, drill, W. & M. B. Pt.
 Hammer, 1200 lb. Chambersburg,
 double frame steam.
 Hammer, 800 lb. Lane, double frame
 steam.
 Lathes, 14", 16", 20", 26" Walcott,
 d. b. g., q. c. g.
 Lathe, 18"x 8' Monarch, q. c. g.
 Lathe, 24"x10' Fay & Scott.
 Lathe, 26"x12' 10' Wickes, d. b. g.,
 q. c. g., taper attachment.
 Miller, 3-B Owen, vert. attachment.
 Miller, 1-B Fox horizontal.

2323 N. 9th St., St. Louis, Mo.

Miller, No. 4 Hendey, b. g.
 Miller, No. 7-H Becker.
 Miller, No. 2 American Lincoln.
 Motors, 10, 40, 50 h. p., G. E.
 Planer, 24"x24"x6' Lodge & Davis.
 Planer, 26"x26"x6' Pond.
 Presses, Swaine Nos. 57 & 35.
 Press, No. 8 Bliss Stiles.
 Profilers, two-spindle, Pratt &
 Whitney, Putnam, Reed-Prentice.
 Punch, No. 26 Excelsior, cap. 4".
 Riveter, air, P.A.
 Roll, plate straightening, No. 9
 Hilles & Jones.
 Screw machine, hand, Smith.
 Shaper, 16" Whipp, s. g.
 Shaper, 17" Smith & Mills, s. g.
 Shears, 134 Marshalltown, 4".
 Shear, No. 31 Exc. alligator.
 Shear, 62" Peerless, 14 ga.
 Shear, 52" Niagara, ft. sq.
 Shear, 37" Bertsch, foot gap.
 Stake riveter & punch, No. 3 Hilles
 & Jones, 5' throat.
 Turret lathe, 24" Wysong & Miles.
 Turret lathe, 16" Gisholt.
 Turret lathe, No. 3 Wood.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1001-3-5 N. Sixth St.,

St. Louis, Mo.

11"x 4' Shepard.
 13"x 8' Barnes.
 25"x18' Niles, plain change.
 36"x16' Fitchburg.
 16" Smith & Mills.
 32" Walcott.
 24"x24"x 6' Gray.
 26"x26"x 6' Cox.
 No. 1^{1/2} Brown & Sharpe plain.
 No. 12 Kempsmith plain.
 No. 3 Becker plain.
 No. 4 Le Blond plain.

LATHES.

26"x10' Bridgeford heavy duty.
 26"x18' Springfield, motor-driven.
 33"x20' Draper.
 54"x16' Putnam.

SHAPERS.

24" Gould & Eberhardt.
 36" Cincinnati, 8' traveling head.

PLANERS.

30"x30"x 8' Whitcomb.
 42"x42"x12' New Haven.

MILLERS.

No. 5 Cincinnati plain.
 No. 3 Kempsmith universal.
 Owen duplex.

DRILLING MACHINES.

4' Mueller radial.
 6' Prentice plain.
 Pawling & Harnischfeger horiz.

MISCELLANEOUS.

Motors: 5, 10, 15, 20 & 30 h. p., d. c.
 Motors: 5, 10, 15, 20 & 30 h. p., 3
 phase, 60 cycle.
 Pumps, a large assortment.
 Punch, No. 15 Williams-White.
 Screw machine, 14" Foster.
 Screw machine, No. 4 Wood.
 Slotter, 36" Niles.
 Slotter, 48" Betts.
 Tapper, No. 2 Garvin.

22" Barnes.
 24" Aurora.
 40" Aurora.

Bolt cutter, 2^{1/2}" Standard.
 Bulldozer, hydraulic, 75 ton Lourie.
 Cold saw, No. 12 Higley.
 Cold saw, 26" No. 2 Bryant.
 Grinder, 5"x18" Ott.
 Grinder, 8"x30" Modern.
 Grinder, No. 1 Brown & Sharpe univ.
 Grinder, 8"x18" Ott univ.
 Hammer, steam, 1000 lb.
 Marking machine, Mathews.

SECOND-HAND MACHINERY

FOR SALE BY

Betwinik Brothers. - **21 Sylvan Ave., New Haven, Conn.**

Drill presses, Allen, single spindle, ball bearing, each	\$ 135.
Lathes, Hendey, q. c. geared, yoke head, taper attachments, each	500.
Millers, universal, Brown & Sharpe, Garvin, complete, each	750.
Planers, Rowland 20" x 20" x 5", single head, metal working, each	200.
Shapers, Stockbridge 16" crank, complete, brand new, each	550.

FOR SALE BY

Brownell Machinery Co. - **11-13 Eddy St., Providence, R. I.**

Boring mill, No. 1 Beaman & Smith.	Milling mch., No. 2 B. & S. univ.
Boring mill, No. 1 Cleveland.	Pipe machine, No. 304-A Oster.
Drill, 4-spindle Reed-Prentice.	Planer, 17" x 17" x 4" Whitcomb.
Drill, 5' American univ, radial.	Planer, 22" x 22" x 5" Whitcomb.
Drill, 26" Henry & W. sens. radial.	Planer, 30" x 30" x 8" Whitcomb.
Gear shaper, No. 612 Fellows.	Planer, 36" x 36" x 13" Betts.
Grinder, 20" Diamond wet tool.	Planer, 72" x 72" x 12" Pond.
Hammer, 40 lb. Bradley cushion helve.	Screw machines, No. 00, OG and
Hammer, 50 lb. Bradley upright hlv.	No. 2 B. & S. automatics.
Lathe, 10" x 4' Reed.	Screw machines, 14" Cleveland
Lathe, 28" x 14" Maine.	Model A automatic.
Lathe, 30" x 12" Putnam.	Screw machine, 24" Davis, chucking.
Milling mch., No. 6 Whitney hd.	Swaging machines, No. 2 Standard.
Milling mch., 16" Briggs high duty.	Swaging machine, No. 38 Langelier.
Milling machine, No. 1B Kearney &	Wire coiler, No. 2 Standard.
Trecker, with vertical, univ, and	Wire pull block, No. 11 Standard.
slotting attachments.	

FOR SALE BY

Jones Machine Tool Co. - **435 E. Pearl St., Cincinnati, Ohio**

ENGINE LATHES.

14" x 6' Bradford, q. c.	22" x 12' United States, q. c.
16" x 8' Bradford, q. c.	24" x 12' LeBlond, q. c.
18" x 8' Walcott, q. c.	30" x 18' Prentice, l. c.
20" x 8' Boye & Emmes, q. c.	42" x 18' New Haven, l. c.
20" x 10' United States, q. c.	

DRILL PRESSES.

22" Prentice, p. f.	24" Prentice, s. h., taper attach.
24" Aurora, b. g., s. h.	24" Weigel, all gear drive.
24" Aurora, s. h., taper attach.	28" Superior, s. h., b. g.

SHAPERS.

14" Steptoe crank.	18" Barker crank.
15" Juengst crank.	24" Steptoe crank.
16" Smith & Mills crank.	

MILLING MACHINES.

No. 1 Toledo hand miller.	No. 3 Milwaukee, plain, s. p. drive.
No. 1½ B. & S. universal.	No. 4 Cincinnati, plain.
No. 3 B. & S. plain, s. p. drive.	No. 1½ Knight vertical miller.

MISCELLANEOUS.

Automatics, Cleveland, 24" cap.	Presses, P-2 & P-3 Ferracute, No. 5
Boit cutter, 14" Acme, single head.	Toledo, No. 74½ Bliss.
Die filer, P-4 Oliver.	Punch, No. 6 Beatty, 48" throat.
Gear cutters, 26" & 36" B. & S.	Square shear, No. 411-G Toledo,
Grinder, No. 60 Heald.	97" blade.
Hammers, board drop, 800 to 2000 lb.	Square sh., No. 848 Niagara, 10 ga.
Planers, 24", 36" & 48".	Square shear, 96" foot power, 20 ga.
Press, rack & pinion, No. 857 Toledo.	Turret lathes.

Let us know your wants. We can supply you.

SECOND-HAND MACHINERY

FOR SALE BY

A. D. White Machinery Co., - 108-114 N. Jefferson St., Chicago

ENGINE LATHES.

14"x 6' Smurr & Kamen.
18"x 7' Chard, d. b. g., p. c.
18"x 9' Bell, d. b. g., p. c.
20"x 8' Hamilton, d. b. g., s. g. c.
20"x 8' Lodge & Shipley, grd. hd.
20"x 8' Reed, s. b. g., p. c.

20"x 8' Keed, motor driven.
22"x10' Davis, d. b. g., q. c.
32"x10' Pond, s. b. g., p. c.
34"x10' Putnam, s. b. g., p. c.
38"x14' Fifield, s. b. g., p. c.

MILLING MACHINES.

No. 0 Rockford, plain.
No. 25 Becker, horizontal.
No. 1 Newton slab.

Model AB Becker, vert., motor dr.
Type "A" Briggs (2).

DRILL PRESSES.

20" Mechanics, friction.
26" Barnes, sliding head.
28" Barnes, sliding head.
36" Aurora, sliding head.

2 spindle Guarantee, h.s., b. b.
4 spindle Reed sensitive, $\frac{1}{2}$ " cap.
24" No. 24 Foote-Burt heavy duty.
2 spindle 24" Barnes, all grd. gang.

PUNCH PRESSES.

No. 0 American Can.
No. 8 & No. 11 Bliss auto. button
presses.

No. 4 Rockford, o. b. i. (3).
New Swaine o. b. i. presses Nos. 27,
29, 31, 33, 35 and 37.

TURRET LATHES AND

No. 3 Foster, plain head.
20"x5' Bridgeport, (2).
20"x8' Fay & Scott universal.
22"x5' Reed.
21" and 24" Gisholts.
3x36" Jones & Lamsen.
16"x10" Milholand.
16" Briggs (2).
No. 1 Garvin, hand, (4).
No. 1 B. & S. auto $\frac{1}{2}$ " (2).

SCREW MACHINES.
No. 3 Stecher, hand, (4).

BOLT CUTTERS AND
14" Acme, double head.
34" Acme single head, (2).
4" Acme single head.

16"x5' Dreses Fox.
18"x6" American Fox.
18"x6" Springfield Fox.
7/16" Cleveland, ratchet feed.
1" Cleveland, semi-auto.
1" Cleveland, friction.
1" Cleveland, jigger.
1" Hartford, (2).
1" Cleveland, jigger.

PIPE MACHINES.

Blower, No. 7 Sturtevant, high press.
Boring mch., $\frac{1}{2}$ " bar, Binsse horiz.
Gang slitter, takes 21" sheets.
Gang slitter, takes 29" sheet.
Gas engine, 35 h. p. Columbus.
Gas engine, 55 h. p. Bruce-McBeth.
Grinders, No. 2 Woods tool & cutter
Grinder, No. 2 Oesterlein tool & cut.
Grinder, 12x32 Landis plain.

4" Saunders (2).
8" Eaton, Cole & Burnham.
MISCELLANEOUS.
Grinder, Springfield, 2-wheel wet.
Grinder, Leland & F., wet.
Keyseater, No. 2 Mitts & Merrill.
Planer, 30"x30"x10' Pond, 1 head.
Profiler, 2 spindle Putnam.
Riveter, $\frac{1}{2}$ " Shuster.
Saw, No. 5 $\frac{1}{2}$ Nutter-Barnes.
Screw slotter, Garvin hor. 3/16 to $\frac{1}{2}$ ".
Tapper, No. 2 Garvin, auto.

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76" Betts, heavy modern.	3" Betts, Horizontal, knee type.
60" Bickford, standard, 2 heads, low price.	No. 31 Rochester, horiz., floor type, motor drive.
8-24" Bullard Vertical Turret.	36" Bullard vert. turret.

DRILLS

8' Niles Plain Radial.	3 and 4 spindle Barnes gang.
6' Bickford, Semi-Universal Radial.	2 spindle Foote-Burt, hvy. rail type.
4' Gang. gear box drive.	6 spindle Rockford, automatic feed.
6 spindle Baush, 1" capacity.	6 spindle Allen sensitive.
28" Aurora upright.	

LATHES

60"x20' Fifield, D. C. motor drive.	28"x14' Fitchburg, 3 s. c., d. b. g.
38"x30' New Haven, 23' centers, 5 s. c., belt drive.	20"x 8' Lodge & Shipley.
36"x14' Putnam triple geared.	Six J. B. Morris 18"x8' qk. change,
36"x21' Pond, double head.	3 s. c., d. b. g., like new.
	12"x9' P. & W.

MILLING MACHINES

8—No. 5C Becker Verticals, new.	No. 25 Becker Plain.
No. 3 LeBlond, plain, high duty.	No. 2 Hendey Norton Plain.
No. 2 Kempsmith Universal.	No. 1½ Hendey Norton Universal.
50"x8' Ingersoll Slab.	Garvin No. 15 Vertical, planer type.

PLANERS

84"x84"x13' Sellers, 3 hds., belt dr.	42"x42"x12' Pond Machine Tool Co.,
48"x48"x14' Powell, 4 heads, reversible motor drive, complete with electrical equipment.	2 heads, belt driven.
48"x48"x16' Bement-Miles, 4 heads, belt driven.	36"x36"x12' Niles-Bement-Pond, 3 heads.

PRESSES

No. 55 Adriance S. A.	No. 1 Farrel, straight side, 8" stroke.
No. 512 Bliss, triple action.	

SHAPERS

4-15" Hendey, box table and vise.	18" Smith & Mills, box table and vise.
3-48" Morton, extra hvy., draw-cut.	

MISCELLANEOUS

10' Bement Boiler Plate Rolls.	Grinder, No. 2 Bath Universal.
12" New Haven Slotter.	Shaper, 18" Ohio, back geared.
No. 126 Buffalo Slitting Shear(new).	Turret Lathe, Greenlee flat turret lathe, fine condition.
10" Newton Slotter (new).	Slotter, Dill 15-18, new, in crate.
8" Curtis & Curtis pipe machine, with dies, etc.	Betts slotter, 14" to 29" table, 20" gap, fine.
Drill, 24" Barnes Drill Co., all gear-ed, like new.	

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9" to 13" Barnes, h. s., cp. r., new.
10"x 5' Summit, nearly new (2).
13-15-16 and 18 O. & S., h.s.c.r., new.
16"x 6' Monarch, dbl. bk. gr.
16"x 8' Columbus, new.

TURRET LATHES and

24" Steinle, 6" hol. spdl., grd. hd.
15" Tilted turret hand screw mchc.
1" and 1 1/2" Mulholland.

SHAPERS

14" Niles, traveling head.
14" Smith & Mills, crank.
16" Barker, back geared crank.

PLANERS

24x24x 6' Gray.
24x24x 6' Pease.
36"x36"x12' Niles.
44x44x12' Pond, 4 heads.
48x48x16' Bement-Miles, 2 heads.

PRESSES

No. 18 Bliss, open back inclinable.
No. 35 Niagara, Stiles type, (2).

DRILLS and RADIALS

Henry & Wright sgl. spdl., high spd.
34" Canedy-Otto plain, new.
Sensitive 1, 2, 3, 4 and 6 spindle.

3-A, 4-A, 5-A and 6-A Willard-

Em. bench, for radio parts.

1" Avey high speed bench, (8).

24", 26", 28" and 32", sliding head.

3" Morris plain, gear box drive.

**Six new standard makes 20" Drills, each \$111.50
Motors, 1 to 50 H. P., 3 ph., 220 v., G. E., New**

MILLING MACHINES

No. 25 Becker plain, (3).
Ames, Lincoln type, 10"x40" table.
No. 1 Kempsmith universal.
No. 3 Brainard, 30x7 table.

No. 1 1/2 B. & S. plain.

No. 2 H. Brown & Sharpe plain.

Briggs type "A" high duty, 24x8 table.

No. 32 Kempsmith Lincoln type, (3).

GRINDERS

Nos. 1, 3 & 78 W. & M. surface.
10x24 Norton plain.
Capital, internal, practically new.
No. 2 W. & P. 10x30 universal.

12x36 Cincinnati universal.

26" and 66" Yates plate.

6x32 Norton, plain.

12x48 Landis, plain.

MISCELLANEOUS

Band saws, metal, Klemm, (2).
Bending rolls, 8' for 8" plate.
Boring mill, 12", 2 swivel heads.
Boring mill, Bullard 34" turret hd.
Cold saw, Burr, 3" capacity.
Compressors, 9x8 and 12x10, new.
Gear cutter, Whiton 36"x9 1/2" face.
Gear millers, Bilton No. 1, (5).
Hammers, 40 lb. Bradley, helve, (2).
Hammer, 150 lb. Standard drop.
Oil groover, Garvin, nearly new.

Oil separator, Springfield.

Pipe machines, 2", 4", 6" & 12".

Polishing and buffing lathes, W. & P.,

3 ph. motor hd., 14" spdl., (4).

Pumps, Gould triplex, 6x8" & 7x8".

Punch & shear 2 by 10" throat.

Pyrometer, Brown 20000, 2-way.

Riveter, high speed, 3" capacity.

Rotary shear, No. 20 Quickwork.

Shear, 5' Robinson, for 10 gauge.

Shear, No. 20 Quickwork, 30" throat.

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Broaching machine, No. 4 Burr.
Broaching machine, No. 2 J. N. LaPointe.
Compressor, 6x6 Curtin, dbl. cyl.
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Drill, 6-sp. 14" Rockford gang.
Grinder, No. 6 Bryant, chuck'g.
Hack saw, No. 7 Racine.
Hammer, H. C. Smith auto.
Lathe, 12" Hendey, tool room.
Lathe, 9x21 $\frac{1}{2}$ Sundstrand Mfg.
Lathe, 9x12 Porter-Cable.
Lathe, 16x7 Oliver, q. c. g.
Lathe, 24x10 S. B. & E., stand'd.
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Miller, No. 2-H Becker vert.
Miller, 4" P. & W. spline.

Planer, 30"x30"x8' Pond.
Press, No. 34 Consolidated, arch.
Press, No. 164 Consolidated.
Radial drill, 3' Dreses.
Radial drill, 3' Fosdick.
Riveter, 4" Shuster.
Sand blast, Type A-6 Pangborn.
Scrap compress, No. 10 Econo-
my standard.
Screw machine, 2" Cleveland.
Shear, squaring, 96" Ohl, 16 ga.
Shear, 10' Bertsch, 11 gauge.
Turret lathe, 3x36, J. & L.
Turret lathe, 2x24, J. & L.
Turret lathe, No. 3 B. & O.
Turret lathe, No. 5 Foster.
Turret lathe, 14" Warner & S.
Wire weaving mch., S. & K.

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MILLING MACHINES—New

- 3—No. 1 $\frac{1}{2}$ Rockford univ., cone type, cap. 25x7 $\frac{1}{2}$ x18.
- 2—No. 2 $\frac{1}{2}$ Rockford univ., cone type, cap. 34x9x18.
- 1—No. 2 $\frac{1}{2}$ Rockford univ., high pwr., grd., sgl. pulley dr., cap 24x9x18.
- 2—No. 1 $\frac{1}{2}$ American plain and universal, cone type, cap. 25x9x19.
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MILLING MACHINES—Used

- 1—No. 1 Cincinnati plain, m. d.
- 1—No. 2 Becker plain, m. d.
- 1—No. 4 Cincinnati univ., m.d.
- 6—No. 32 Kempsmith, Lincoln.
- 6—P. & W. 12" Auto. Mills.
- 1—Ingersoll slab, 20"x20"x8'.
- 1—Nos. 1 & 2 Newton keyseat mills, m. d.
- 3—No. 3 $\frac{1}{2}$ Fox, power and hand, table 7x27 $\frac{1}{2}$ ".

MISCELLANEOUS

- 3—16"x8' Sidney Lathes, q. c., d. b. g.
- 1—37" Niles Boring Mill, 2 heads.
- 1—50" Sellers Car Wheel Borer.
- 1—42" Bertsch Multiple Punch.
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- 12—Gisholt, 12" and 24" Turret Lathes.
- 4—Multiple Drills, 10 to 24 spindles.
- 14—Screw Machines, $\frac{1}{2}$ to 3 $\frac{1}{2}$ " cap.
- 4—Radial Drills, 3 $\frac{1}{2}$, 4" and 5" plain and universal.
- 5—No. 2 Oakley Universal Grinder, 10x20.
- 1—Used No. 3 Sidney Inclinable Press, weight 2600 lbs.
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- 54" x 21' Pond.
50" x 60' Johnson, ex. hvy. pat.
50" x 30' Johnson, ex. hvy. pat.
50" x 14' American.
36" x 14' Bridgeford, geared head.
26"-48"-24" McCabe Double Spdl.
26"-48"-x16" McCabe Double Spdl.
32"-x18" Blaisdell.
28"-x12" Boye & Emmes, qck. chg.
26"-x16" Bradford, motor driven.
26"-x14" Niles-B.-P., quick change.
26"-x10" Bridgeford, quick change.
24"-x12" Schumacher & Bove, q. ch.
16"-x 8" Lodge & Shipley, q. c.
3½" x 60" Fitchburg "Lo-Swing".

TURRET LATHES & SCREW MACHS.

- 28" swing, Pond, rigid type.
24" swing, Gisholt, motor driven.
21" swing, Gisholt, gap.
21" swing, Gisholt, 3½" hole.
3x36" Jones & Lamson, grd. hd.
2x24" Jones & Lamson, grd. hd.

BORING MILLS.

- 10-16' Betts, double head.
48" "Gisholt," double head.

PLANERS

- 84" x 60" x 30' Pond, 4 hds., motor dr.
72" x 72" x 12" Niles-Bement-Pond, 4-heads, motor driven.
48" x 48" x 15" Pond, 2 heads.
48" x 48" x 14" Sellers, 3 heads.
42" x 36" x 12" Gray, 2 heads.
30" x 30" x 6" Cincinnati, 1 hd., latest.

HORIZONTAL BORING AND DRILLING MACHS.—"Knee Type"

- 21" bar, Bement Miles.
48" bar, Niles, 64" swing, power raise to table.
48" bar, B.-M., 62" sw., pwr. raise.
48" bar, B.-M., 62" sw., pwr. raise.
48" bar, Bement, power raise.

SLOTTERS

- 24" Niles-Bement-Pond (like new), complete with motor.
18" Putnam, motor drive.
14" Sellers.

BENDING ROLLS

- 20" Niles Tool Works, drop-end, balance bar type, motor drive, like new.
10"-2" McCabe drop-end, balance bar type (motor or belt drive).

RADIAL DRILLS

- 5' Dreses.
4' Fosdick, plain.
4' Carlton, speed box.
3' Carlton, speedy-sensitive.
3' Fosdick, plain.
2½' Carlton, speed box.

GEAR CUTTERS

- 22" Gleason, bevel gear.
30" Gould & E., spur and bevel.

MILLING MACHINES

- No. 3B Milwaukee universal.
No. 5 B. & S. vert., circular attach.
No. 2 Cincinnati, vertical.
No. 3 Cin'ti, plain, table 45x12".
No. 22 Becker Brainerd,tbl. 48x14".
Newton, 60x12" horizontal.
No. 5 Hendey, q. c., Mrs. style.

PUNCHES AND SHEARS

- 60", No. 6 Hilles & Jones horizontal, arranged for motor drive.
50" New McCabe.
No. 4, 42" Hilles & Jones.
36" No. 1 Long & Allstatter, dbl. end.

GRINDERS

- Bridgeport, 60x12", takes 36" bet. centers, Plain Roll Grinder.
Landis, univ., 10" sw. takes 30" cent. Iroquois univ., 12" sw., 36" centers.

SHAPERS

- 28" Smith & Mills, single pulley drv.
24" Gould & Eberhardt.
16" Smith & Mills plain.

PIPE MACHINES

- 12" Curtis & Curtis.
10" Saunders, motor drive.
4" Jarecki.

HAMMERS

- 2000 lb. Erie, steam drop.
2500 lb. Chambersburg, steam drop.
1500 lb. Chambersburg, steam drop.
200 lb. Bradley upright.

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1—44"x36"x14' "American Tool Works"

1—36"x36"x16' "Flathers"

3—36"x36"x10' "Woodward & Powell"

1—36"x36"x10' "Pond"

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- 1-45" x 24' Pond, triple gd.
- 3-36" x 42' LeBlond, q. c. g.
- 15-36" x 30' Pittsburgh, q. c. g.
- 1-36" x 19' Johnson, triple geared.
- 6-30" x 11' American, geared head,
- 15-each 26" x 9', 10', 12', 14', 16', 18'
and 20' Bridgeford, q. c. g.
- 3-20" x 10' Lodge & Shipley, q. c. g.
- 89-20" x 5', 12' & 16' Amer., q. c. g.
- 1-18" x 8' Boye & Emmes, q. c. g.
- 3-18" x 5' Lodge & Shipley, q. c. g.
- 3-18" x 9' Lehmann, q. c. g.
- 7-17" x 6' LeBlond mfg. auto.
- 2-16" x 6' Bradford, q. c. g.
- 1-15" x 6' Sidney, q. c. g.
- 1-14" x 6' Bradford.
- 1-13" x 5' Willard.

DRILLING MACHINES.

- 1-each 3', 3½', 4' and 6' Western Radials.
- 3-No. 11 Pratt & Whitney mult. sp.
- 2-No. 11 Natco multiple spindle.
- 21-3, 4 & 6 spindle Allen, b. b.
1 each 1 & 2 spdl. Henry & Wright.
- 6-20" Barnes plain and b. g.
- 6-20" Rockford plain and b. g.
- 6-22" Barnes, sliding head.
- 4-26" Barnes "Camel Back".
- 1-28" Cincinnati, tapp. att.
- 1-28" Cincinnati.
- 1-34" Barnes.
- 1-36" Cincinnati, tapp. att.
- 1-40" Cincinnati.
- 1-No. 310 Balsen.

PLANERS.

- 1-96" x 72" x 20' Bement, 4 heads.
- 1-72" x 72" x 14' Niles, 4 heads.
- 1-60" x 48" x 10' Gray, spiral geared.
- 1-36" x 36" x 10' Beckett.
- 1-30" x 30" x 10' Woodward & P.
- 1-24" x 24" x 12' Whitcomb.
- 3-ea. 16", 20" & 24" Walcott, b. g.

CRANK SHAPERS.

- 1-15" Potter & Johnston.
- 1-16" Queen City.

VERTICAL BORING MILLS.

- 15-24" Bullard New Era vertical.
- 1-30" Gisholt vertical.
- 1-36" Bullard vertical.
- 1-42" Gisholt vertical.
- 1-37" 44" Colburn vertical.
- 1-48" Colburn vertical.
- 1-60" Bullard vertical.
- 1-72" Betts vertical.
- 1-10' Niles vertical.
- 1-No. 3-A universal horizontal.
- 1-No. 5 Defiance horizontal.
- 3-Foote-Burn horizontal.
- 1-Cleveland horizontal.

MILLERS.

- 2-No. 1 Brown & Sharpe plain.
- 1-No. 1 Brown & Sharpe univ.
- 1-No. 18 Cincinnati univ.
- 15-Nos. 2 & 3 Kempsmith plain.
- 2-No. 2A Brown & Sharpe univ.
- 4-No. 4 Cincinnati plain.
- 1-No. 4 Cinti. univ. hi-power.
- 1-No. 3 Brown & Sharpe vert.
- 1-No. 2B Milwaukee vert.
- 1-No. 5 Becker vert.

GEAR CUTTERS & HOBBERS.

- 3-18" Gould & Eberhardt.
- 13-No. 1 Farwell.
- 2-Nos. 3-28 & 3-36 B. & S.
- 6-No. 6 Fellows.
- 1-No. 6 12 Fellows.
- 1-36" Gleason bevel.

TURRET LATHES.

- 1-3½" Foster.
- 2-3x36" Jones & Lamson.
- 1-2" Brown & Sharpe.
- 3-14" Warner & Swasey.
- 5-14" Foster No. 3.
- 5-1" Foster No. 2.
- 8-1" Warner & Swasey.
- 8-4" Pratt & Whitney.
- 4-24" Gishols.

GRINDERS.

- 46-4" x 20" to 20" x 96" Landis, Brown & Sharpe, Cincinnati, Modern and Norton plain and universal.

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VERTICAL BORING MILLS

- 120" Niles, 2 swivel heads.
80" Niles-Bement-Pond, 2 sw. hds.
72" Niles, 2 swivel heads.
64" Poole, 2 swivel heads, thread cutting.
44" Niles, 1 swivel hd., 1 tur. head.
42" Putnam carwheel, hub facing attachment.
36" Niles carwheel with crane.
32" Rogers, swivel turret head, universal jaws.

HORIZONTAL BORING MILLS

- Bement cylinder, 8" bar.
Barrett No. 2 cylinder, 5" bar.
Beaman & Smith No. 2 floor boring, drill and milling machine, 4" bar.
Lucas "Precision" boring, drilling and milling machine, 3 $\frac{1}{2}$ " bar.
Niles boring drilling mch., 4" bar.
Betts boring drilling mch., 5" bar.
Bement bor. drilling mch., 3 $\frac{1}{2}$ " bar.
Newark bor. drilling mch., 3" bar.
Bement bor. drilling mch., 3" bar.
Bement bor. drilling mch., 2 $\frac{1}{2}$ " bar.
Barnes drill'g tap. mch., 2 3/16" bar.
Underwood type 4" bar. floor plate 8"x9".

LATHES

- 21' triple geared face plate drive Pit Lathe for slotting, facing & boring.
60"x30' Fifield, face plate dr., 22' cent.
62"x22' Putnam, triple grd., internal face plate drive, 18' centers.
62" Pulley, triple grd., face plate dr.
36"x20' Putnam, triple geared, face plate drive.
30"x12' Niles-Bement-Pond, geared head, heavy duty, quick change.
24"x14' Prentice, geared friction head, quick change.
No. 3 Niles-B.-P. dbl. Axle Lathe.

NEW DOUBLE LEATHER BELTING

- 5" center stock..... \$.84 per ft.
10" center stock..... 1.88 per ft.

PUNCHES, SHEARS, ETC.

- Pels Beam Shear, cap. 15" I beams.
Lennox Rotary Shear, 30" thr. 3" cap.
Quickwork Rotary Shear, 45" throat,
4" capacity.
Stoll 10' Squaring Shear, No. 16 gauge.
Stoll 11' Squaring Shear, No. 16 gauge.

PUNCHES, SHEARS, Etc.—Cont.

- No. 5 Long Allstatter double end Punch & Shear, 1" punching cap.
No. 121 Toledo Boiler Maker Punching & Riveting Machine.
Long & Allstatter Hor. Punch, capacity 1 $\frac{1}{2}$ " to 1".
Rock River Bulldozer, cross head 16"x66", stroke 20".
No. 2 Williams & White Cold Bending & Straightening machine.
No. 6 Beatty S. E., Punch, 25" Throat, double gap.
No. 7 Beatty S. E. Punch 15" throat.
2" Acme Forging Machine.
1" Acme Hot Nut Punching Mch.

PRESSES

- No. 4 A Bliss, adjustable bed, 4" stroke, weight 5800 lbs.
DG 5 Ferracute geared, 3" stroke weight 8700 lbs.
No. 60 $\frac{1}{2}$ Bliss, rack and pinion reducing, adjustable stroke 4" to 42", weight 12,500 lbs. (2).
No. 666 Toledo knuckle joint, 24" stroke, 1000 tons pressure, weight 80,000 lbs. (2).
No. 857 Toledo rack and pinion reducing, adjustable stroke 5" to 40".
No. 856 Toledo rack and pinion reducing, adjust. stroke, 5" to 36"(2).
No. 2 $\frac{1}{2}$ E. J. Manville double acting, stroke slide 4", stroke plunger 1 $\frac{1}{2}$ ".
E. J. Manville double acting, open bk.grd., st. slide 1 $\frac{1}{2}$ ", st. plunger 3".
No. 10 $\frac{1}{2}$ V. & O. dbl. acting, stroke slide 1", stroke plunger 1 $\frac{1}{2}$ " (5).
NEW No. 34 Excelsior 225 ton Hydraulic Tire Applying Press (2).

PLANERS

- 96"x98"x37" Planer, 4 heads.
14" Hilles & Jones Plate Planer.
72"x72"x14" Pond, 4 heads.
72"x70"x14" Sellers, 3 heads.
48"x48"x14" Patch, 4 lds., latest type.
42"x42"x14" Pond, 4 heads.
32"x36"x20" Woodward Powell, 2 lds.
36"x36"x12" Bickett, hvy. duty, 2 lds.
36"x36"x12" Bickett, hvy. duty, 1 ld.
16"x16"x42" Walter Bros., 1 head.
Two 25" Newton Plain index cents.

New York Machinery Exchange
50 Church Street, NEW YORK

Harris Brothers Co.

1475 W. 35th St., Chicago, Ill.

Immediate Delivery!

ENGINE LATHES TRIPLE GEARED SCREW CUTTING

96x37 Fifield	27" centers
68x40 Pond	30" centers
60x40 Fifield,	30" centers
with carriages on bed, with comp. r., hollow spindles. (2 mchs.) Nearly new.	
36x32 Amer. Tool Wks.	25" centers
with 2 carriages on bed, comp. rests.	

TURRET LATHES

Gisholt 24" sw. with 4-way turret tool post on carriage, tilted hex. turret on bed with power rapid traverse —taper att., triple grd., pan bed pump— $\frac{1}{2}$ " hole in spindle (10 ma- chines) latest model.
21" swing same, $\frac{3}{4}$ " hole in spdl. (2).
Pond 28" sw. same, $\frac{4}{5}$ " hole in spdl.

Steinle 24" sw. same, $\frac{4}{5}$ " hole in sp.

DRILL PRESSES

Meyers 10" Swing Bench Sensitive.
Champion 20" Swing Stationary Head Square.
Base Wheel and Lever and Power Feed Back Geared.
Colburn 25" Swing (No. D-4) Heavy Duty, High Speed, Single Pulley Drive, Compound Table.
Foote-Burt Vert. 2-spdl. adjustable Heavy Model, 3" cap., also adapted for cylinder boring.
Foote-Burt Vert. 4-spdl.—same.
Bickford Pl. Radial, tap. att., 5' arm.

MILLING

Ingersoll 24"x24"x12' Table Hor- izontal Slab Milling Machines with INCLINED ADJUSTABLE RAIL—(Brand New) (6 machines) —Weight about 25,000 lbs.
HENDEY No. 24 Milling Ma- chines Table 11"x30" (Automatic Feed 20") 20 Machines.
HENDEY No. 4 Milling Machines Table 9"x24" (Automatic Fd. 20") 250 Machines.

VERTICAL MILLING MACHINES

BECKER No. 6 Latest Improved Model Single Pulley Drive (All geared Speeds) Table 61"x15" (Automatic Feeds 62x20x20").
BECKER No. 5 C Latest Improved Model Single Pulley Drive (All geared Speeds) Table 86x14" (Auto. Fds.) 54x16x14" 2 Machines

NEWTON No. 1 with Automatic

have power angu-
lar feed, quick
change, nearly new.
(3 Machines).

36x32 LeBlond	25" centers
with 2 carriages on bed, comp. rests, taper attachment, qk.change. Nearly new. (2 machines).	

PLANERS—SHAPERS—SLOTTERS

Blaisdell 12" stroke Crank Shaper, Planer type.
Putnam Vertical Crank Slotter, 10"
stroke.
Bettis Vertical Crank Slotter, 16"
stroke.
Niles Vertical Crank Slotter, 16"
stroke.
Niles Vert. Crank Slotter, 2" stroke.

PRESSES

Barnes 42" Sliding Hd., Back Grd., Power Feed, (all geared feeds).
Pratt & Whitney 6 spindle adjust- able Table 3" cap.
Bausch 8-sp. Mult., Circular Hd., 20" dia., will drill to the center of a 40" dia. circle.
Kerr & Murray Plain Radial 4' arm for boiler and structural shop and rough work.
Niles-Bement-Pond Co. Pl. Radial 6' arm with tapping attachment.

MACHINES

BECKER No. 7 H. Milling Ma- chines, Table 9"x29". (Automatic Feed 20") 250 Machines.
PEDRICK & AYER No. 3 Univ. Milling Mcne. (Automatic Feeds 34"x10"x18"), Table 52"x14".
Whitney No. 6 Hand Milling Mchs. Table 20"x4" (Feeds 16"x6"x13") 10 Machines.
SMITH No. 6 Hand, Table 20"x4" (Feeds 16"x6"x13") 20 Machines.

Revolving Rotary Table 22" dia. (Auto. Fds. 20"x12"x12") Swings work 33" dia.
BECKER No. 5 Table 48"x13" (Auto. Feeds 40"x15"x12").
BROWN & SHARPE No. 3 Table 60"x16" (Auto. Fds. 34"x16"x14").
GARVIN No. 22 Table 40"x9" (Feeds 24"x8"x18").

Write for a free copy of Bulletin No. 205 describing our
complete stocks of Machine Tools.

"SIMMONS"

MILLERS

- 1—No. 1½-B Milwaukee Vertical.
- 1—No. 3 Cincinnati Hi-Pwr. Vert.
- 1—No. 5 Brown & Sharpe Vertical.
- 1—No. 1-B Hendey Universal Miller.
- 1—No. 1½ Cincinnati Univ. Miller.
- 1—No. 2 Cin'ti High Power Univ.
- 1—No. 3 Cin'ti High Power Univ.
- 1—No. 4 Cin'ti High Power Univ.
- 3—No. 2 Kempsmith Plain Millers.
- 3—No. 2 Cincinnati High Power Pl.
- 6—No. 2 Rockford Heavy Duty Pl.
- 1—No. 3 LeBlonde Heavy Duty Pl.
- 2—No. 3-B Brown & Sharpe Heavy Duty Plain.
- 1—No. 5 Brown & S. Plain Miller.
- 5—18" Cincinnati Plain Millers.

PLANERS

- 2—New 60" Newton rotary planers.
- 1—60"x60"x20' Woodward-Powell, 4 heads, 35 h. p.
- 1—48"x48"x20' Ridgeway High-duty, 4 heads.
- 1—New 48"x48"x28' Cincinnati, 2 hds.
- 1—New 42"x42"x12' Openside Simmons planer.
- 1—36"x36"x20' Woodward-P., 4 hds.
- 1—32"x32"x 8' Powell, 1 head.
- 1—30"x30"x8' Cincinnati, 2 heads.
- 1—24"x24"x 8' Woodward-P., 1 hd.
- 1—24"x24"x 8' Cincinnati.

DRILLING MACHINES

- 2—6' Reed-Prentice pl. radial drill.
- 1—8' Baush plain radial drill.
- 1—New 4' Hammond radial drill.
- 1—4' Prentice plain radial.
- 1—New No. 13 Natco mult. spindle drill.
- 3—No. 310 Baker heavy duty drills.
- 1—32" Prentice sliding head drill.
- 1—24" Cincinnati sliding head drill.

LATHES

- 1—28"x24' Putnam, comp., taper.
- 4—30"x12' American high duty, grd. head, motor drive.
- 1—30"x35' Niles-Bement-Pond lathe.
- 1—36"x14' Putnam all geared head.
- 4—New 36"x34' Bridgeford geared head, QCG 1.
- 1—42"x28' Niles-Bement-Pond.
- 4—New 48"x29' Niles-Bement-Pond motor drive.
- 3—New 60"x29-56' Niles - Bement-Pond motor drive.

BORING MILLS

- 1—24" Bullard New Era vert. mill.
- 1—34" Bertram vertical turret head.
- 1—36" Bullard New Era vertical, cutting lub. system.
- 1—42" Bullard New Era type vertical mill.
- 1—10' Betts vertical mill, 15 h. p. variable speed motor.
- 1—12' Bement extra heavy boring-turning, two swivel heads.

MISCELLANEOUS

- 3—No. 3 Brown & Sharpe Automatic Gear Cutters.
- 3—Nos. 2, 3 & 4 LaPointe Broaching Machines.
- 2—No. 2 Brown & Sharpe Auto.
- 2—No. 0 Brown & Sharpe Auto.
- 6—24" Aurora Sliding Head Drills.
- 8—20" Barnes Self-Oiling Drills.
- 4—22" Barnes Self-Oiling Drills.
- 1—10" Cox Pipe Machine.
- 8—No. 4 Warner-Swasey Screw Machines, p. f.
- 8—No. 6 Warner-Swasey Screw Machines, p. f.

Simmons Machine Co., Inc.

Albany, New York

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- Dies, Screw and Thread Cutting**
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- Drilling Machine Heads**
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For Power Presses
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Jackson Blvd., Chicago
New Britain Machine Co., New Britain, Conn.
Wilmart & Norman Co., Grand Rapids,
Wisconsin Electric Co., Racine, Wis. (Mich.)

Presses, Arbor

Atlas Press Co., Kalamazoo, Mich.
Barnes Co., W. F. & John, Rockford, Ill.
Canedy-Otto Mfg. Co., Chicago Heights, Ill.
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Presses, Broaching

Atlas Press Co., Kalamazoo, Mich.
Louri Mfg. Co., Springfield, Ill.

Presses, Foot

Atlas Press Co., Kalamazoo, Mich.
Rockford Iron Works, Rockford, Ill.
Tucker & Fenn Co., Hartford, Conn.

Presses, Power

Hendley & Whittemore Co., Beloit, Wis.
Rockford Iron Works, Rockford, Ill.
Walsh Press & Die Co., 4709 W. Kinzie St.,
Chicago
Willard-Middletown Machine Co., Cincinnati

Presses, Punch

Lewthwaite Mch. Co., T. H., 417 E. 31st., N.Y.
Louri Mfg. Co., Springfield, Ill.
Rockford Iron Works, Rockford, Ill.

Presses, Screw

Atlas Press Co., Kalamazoo, Mich.
Barnes Co., W. F. & John, Rockford, Ill.
Manhattan Machine & Tool Works, Grand
Rapids, Mich.

Towsley Mfg. Co., John T., Cincinnati

Pulley Machinery

Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split

Pyatt Foundry Co., 325 N. Sangamon St.,
Chicago

Punch Press Feeds

Rockford Iron Works, Rockford, Ill.

Punch, Shear and Bender, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago

Punches, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco
Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.

Lewthwaite Mch. Co., T. H., 417 E. 31st St.,
New York
Whitney Metal Tool Co., Rockford, Ill.

Punches, Power

Hendley & Whittemore Co., Beloit, Wis.

Punches and Dies

Hendley & Whittemore Co., Beloit, Wis.
Lewthwaite Mch. Co., T. H., 417 E. 31st St., N.Y.
Rockford Iron Works, Rockford, Ill.

Quenching Baths

Bennett Metal Treating Co., Elmwood, Conn.

Racks, Bar Stock

New Britain Machine Co., New Britain, Conn.

Reamers, Adjustable

Greenfield Tap & Die Corp., Greenfield, Mass.
McCrossy Tool Corporation, Mendville, Pa.
Schellenbach-Hunt Tool Co., Cincinnati

Reamers, Cylinder

Hinckley Machine Works, Hinckley, Ill.
McCrossy Tool Corporation, Mendville, Pa.

Reamers, Solid

McCrossy Tool Corporation, Mendville, Pa.

Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati, O.

Riveting Machines

Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rod Cutters

Armstrong-Blum Mfg. Co., 341 N. Francisco
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Hendley & Whittemore Co., Beloit, Wis.
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Tucker, W. C. & F. C., Hartford, Conn.

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Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Driving Machines, Automatic

Reynolds Machine Co., Massillon, Ohio

Screw Driving Machines, Portable Electric

Hisey-Wolf Machine Co., Cincinnati

Screw Machines, Automatic

National Acme Company, Cleveland
New Britain Mch. Co., New Britain, Conn.

Screw Machines, Auxiliary

National Acme Company, Cleveland

Screws, Cap and Set

National Acme Company, Cleveland

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Birge-Waterson Co., Cleveland
Brown-Winkler Brothers, New Haven, Conn.
Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Mawhinney Machinery Co., E. L., 55 Washington
Blvd., Chicago

Graves Mch. Exchange, Jersey City, N. J.
Harris Bros. Co., W. 36th & Iron, Chicago
Hill, Clarke & Co., 649 W. Washington
Blvd., Chicago

Johnson & Sons Machinery Co., Wm. C.
St. Louis, Mo.

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McMullen Mch'y. Co., Grand Rapids, Mich.
Molitor Mch'y. Co., Chas., 118 S. Clinton St.,
Chicago

New York Mch'y. Exchange, 59 Church St.,
New York
Niles-Bement-Pond Co., 111 Broadway, N. Y.
Norton Broadway Mch'y. Co., Cincinnati, O.
O'Brien Machinery Co., Philadelphia
Osborne & Sexton Mch'y. Co., Columbus, O.
Pattison Supply Co., W. M., Cleveland
Prybil Machine Co., J. P., 512 W. 41st, N. Y.
Randall Machinery Co., Cincinnati
Reeve-Frake Co., 37 S. Desplaines, Chicago
Reliance Mch'y. Sales Co., Pittsburgh, Pa.
Russell Machine Co., Pittsburgh, Pa.
Scott-Bansbach Mch'y. Co., 32 N. Clinton St.,
Chicago

Seyfert's Sons Inc., L. F., Philadelphia, Pa.
Simmons Machine Co., Albany, N. Y.
Stoehr Mch'y. Co., A. M., 844 N. Wells St.,
Chicago

Strong, Carlisle & Hammond Co., Cleveland
Toomey, Inc., Frank, Philadelphia
Tubor, Velick & Co., Inc., Lake & Desplaines
Sts., Chicago

Wayne Mch'y. Co., Fort Wayne, Ind.

Winterer, Herman L., Philadelphia
White Mch'y. Co., A. D., 108 N. Jefferson
St., Chicago

Shafts, Flexible

Haskins Co., R. G., 29 S. Desplaines St.,
Chicago
Stow Flexible Shaft Co., Philadelphia

Shafts, Steel

American Hollow Boring Co., Erie, Pa.

Shaping Machines

Columbia Machine Tool Co., Hamilton, Ohio
Hollingsworth Mch'y. Tool Co., Covington, Ky.
Ohio Machine Tool Co., Kenton, Ohio
Osborne & Sexton Mch'y. Co., Columbus, O.
Simmons Machine Co., Albany, N. Y.
Smith & Mills Co., Cincinnati
Stepton Co., John, Cincinnati, O.
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Hendley & Whittemore Co., Beloit, Wis.
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Lewthwaite Machine Co., T. H., 417 E. 31st
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Whitney Metal Tool Co., Rockford, Ill.

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Hendley & Whittemore Co., Beloit, Wis.
Quickwork Co., St. Marys, Ohio

Sheet Metal Working Machinery

Quickwork Co., St. Marys, Ohio

Sprockets

Cullinan Wheel Co., 1344 Altgeld St., Chicago

Straightening Machines

Towsley Mfg. Co., John T., Cincinnati

Whitney Metal Tool Co., Rockford, Ill.

Swaging Machines

Etna Mfg. Co., Toledo, Ohio

Tables, Circular

Hinckley Machine Works, Hinckley, Ill.

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Walton Co., Hartford, Conn.

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Avey Drilling Machine Co., Cincinnati
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Burke Machine Tool Co., Connecticut, Ohio
Greenfield Tap & Die Corp., Greenfield, Mass.
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Threading Machines, Bolt and Stud

National Acme Company, Cleveland

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National Acme Company, Cleveland

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Av., Chicago

Tools, Box

Biggs, P. H., Cleveland, O.

Tools, Lathe and Planer

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Armstrong Bros. Tool Co., 308 N. Francisco
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Jackson Blvd., Chicago

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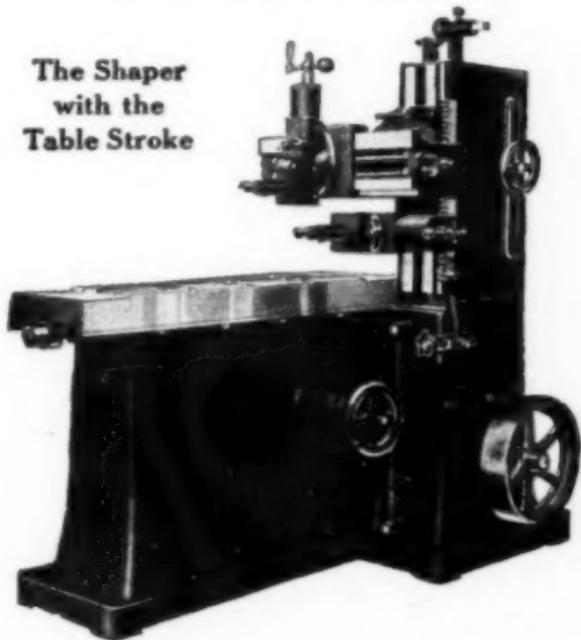
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CANTON, OHIO

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